FIG. 1

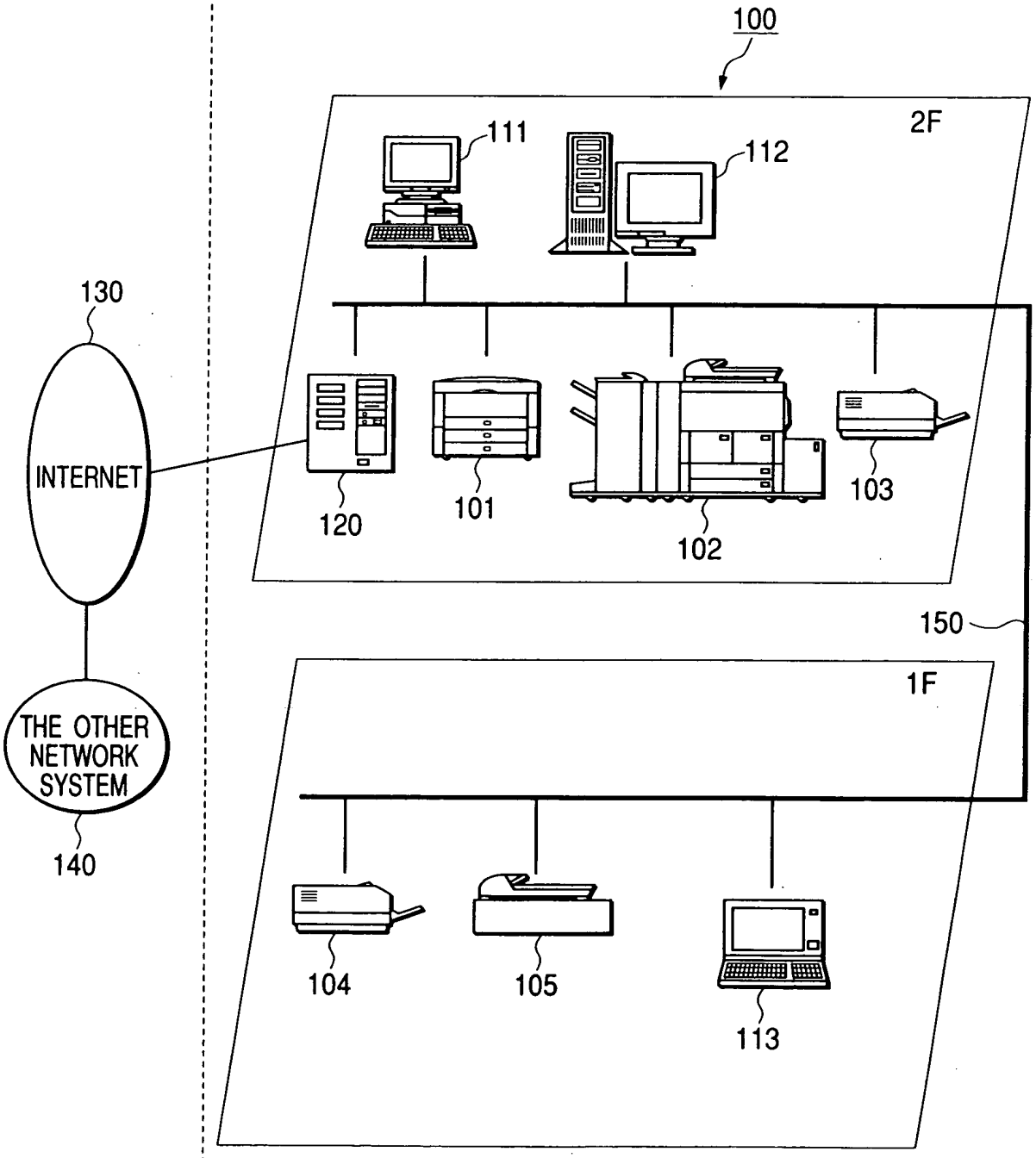

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FIG. 2

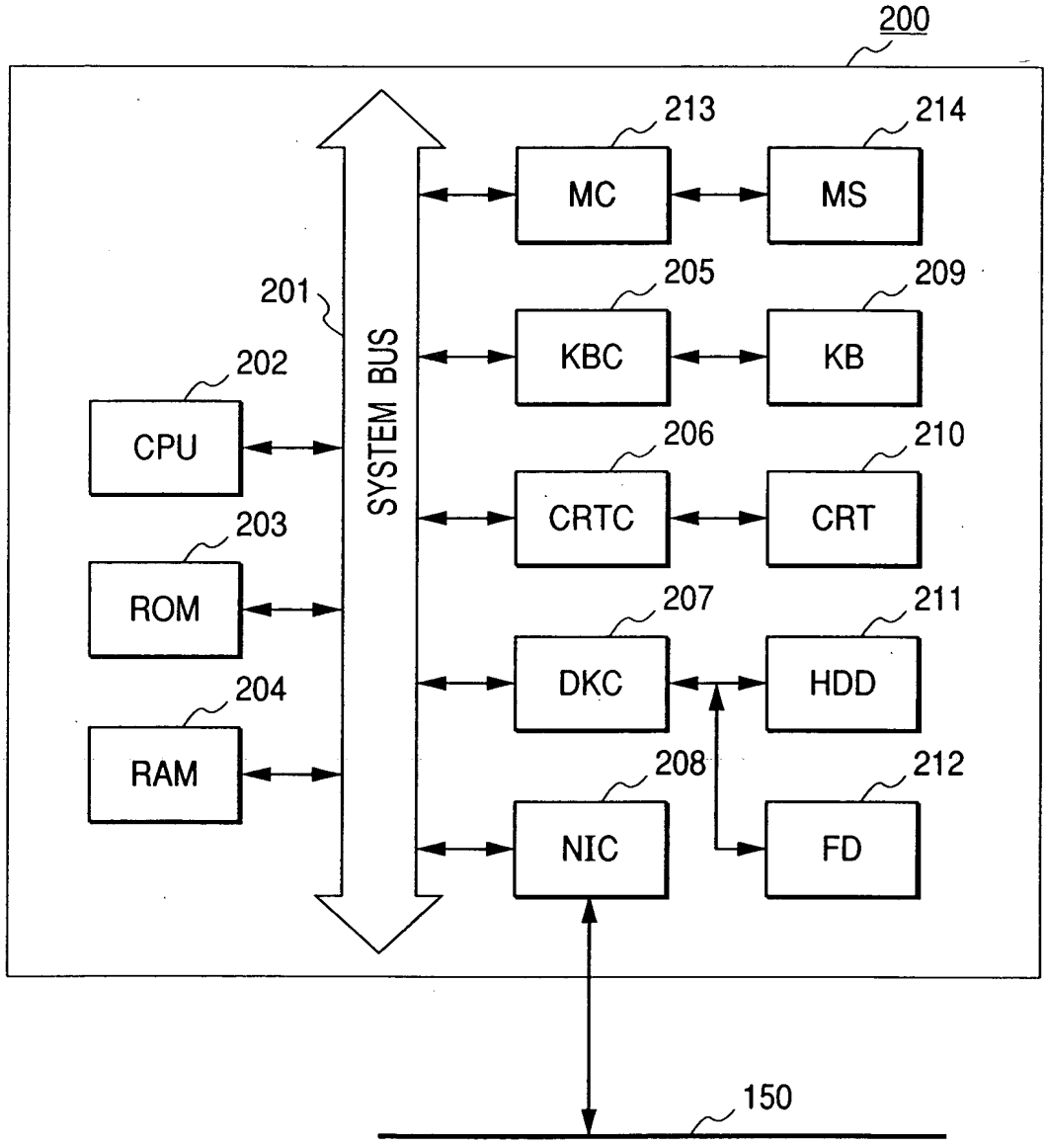

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FIG. 3

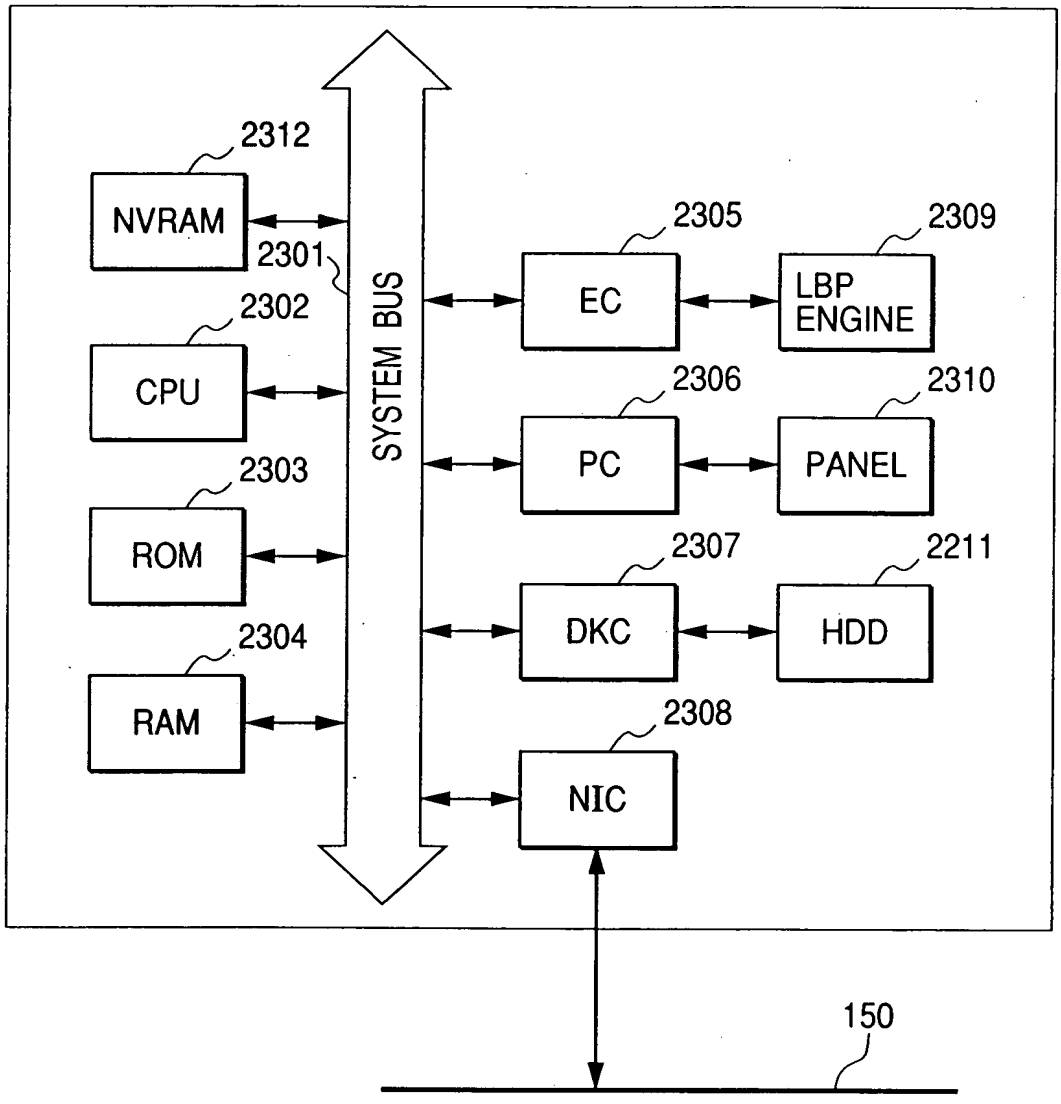

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FIG. 4

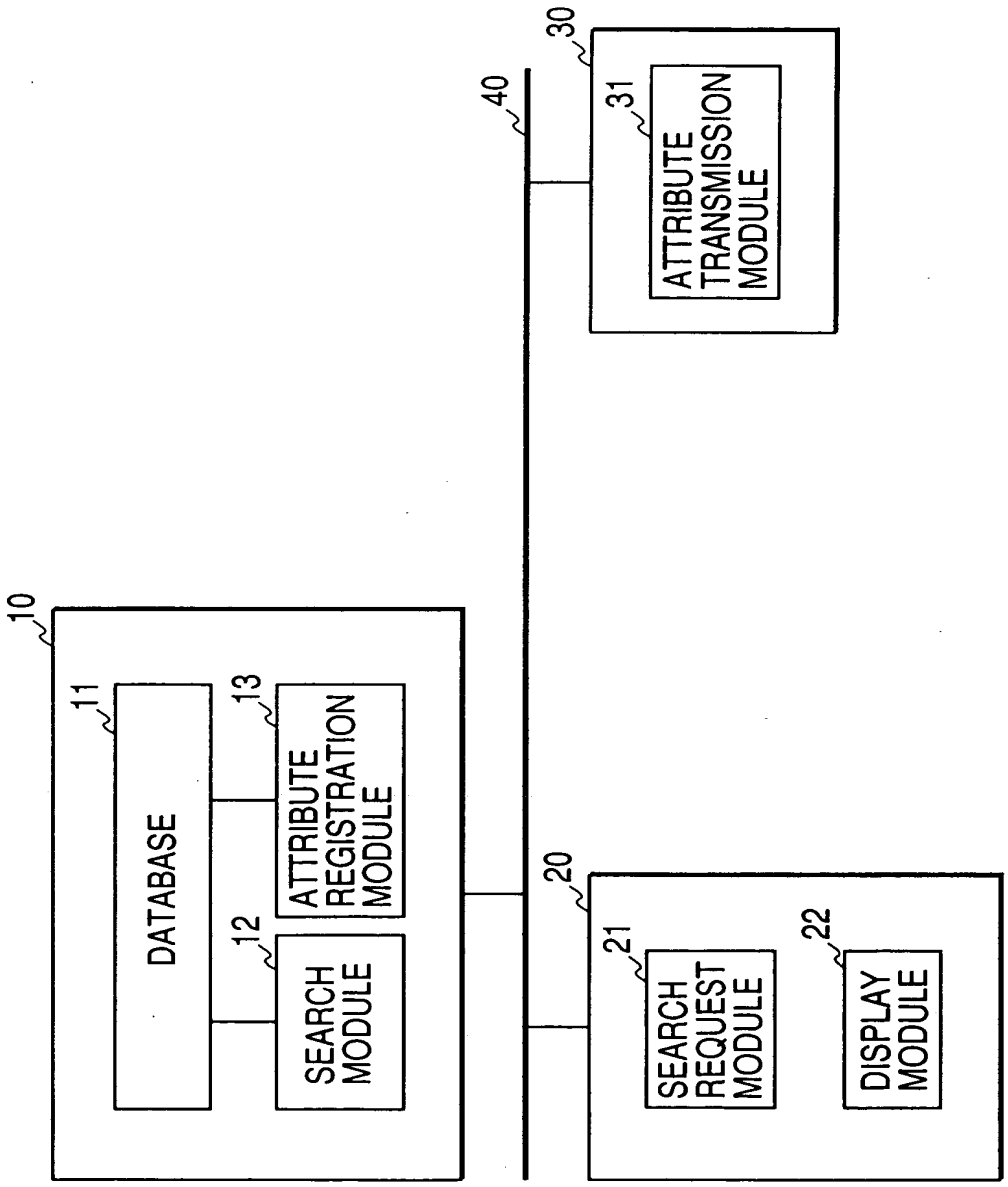
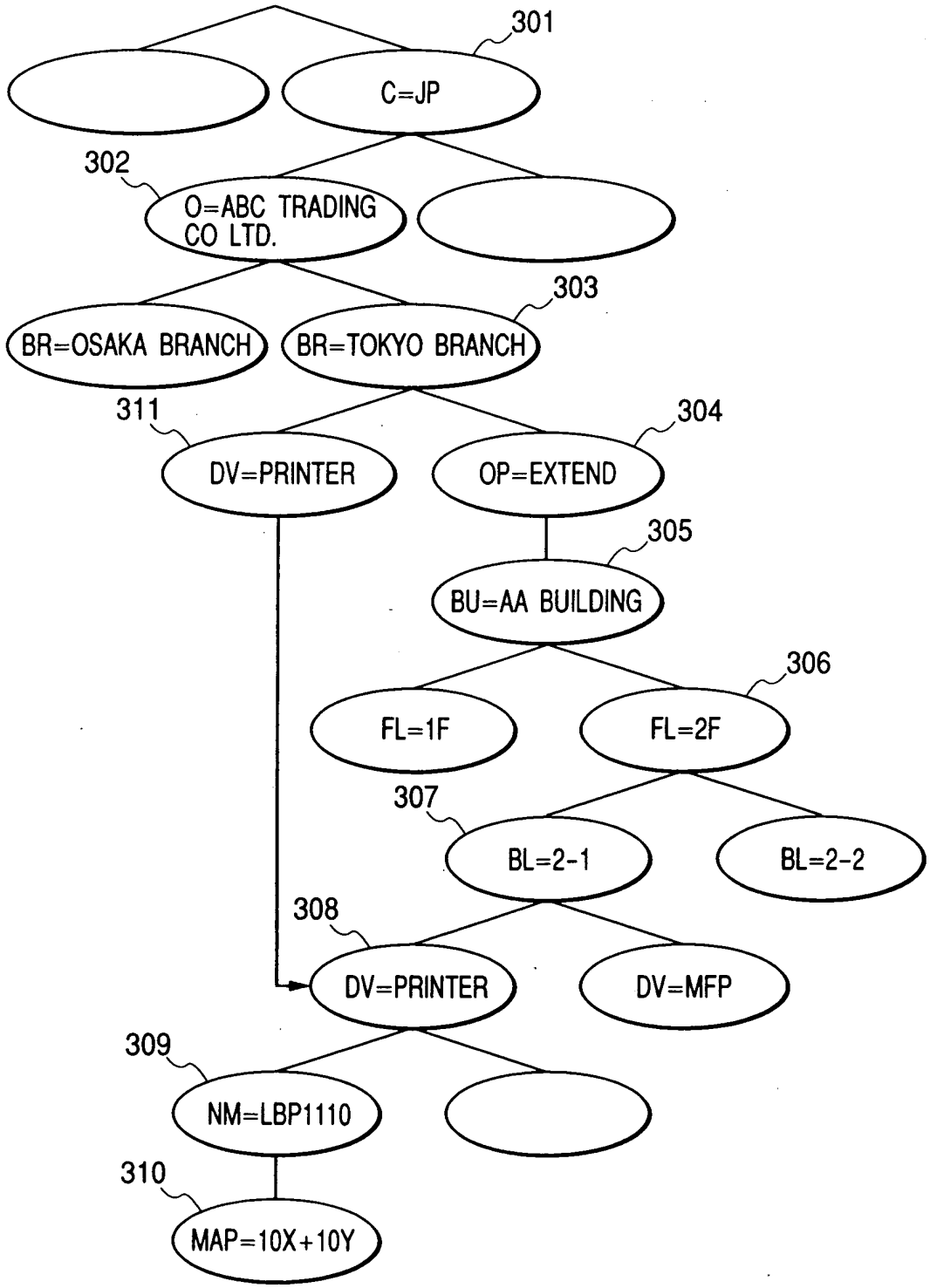

10
11
DATABASE
12
SEARCH MODULE
13
ATTRIBUTE REGISTRATION MODULE
20
21
SEARCH REQUEST MODULE
22
DISPLAY MODULE
30
31
ATTRIBUTE TRANSMISSION MODULE
40

FIG. 5



0056505-0004

FIG. 6

901	LOCATION INFORMATION TAG	
902	NM	LBP1110
903	MAP	10X+10Y
904	DV	PRINTER
905	BL	2-1
906	FL	2F
907	BU	AA BUILDING
908	OP	EXTEND
909	BR	TOKYO BRANCH
910	O	ABC TRADING CO LTD.
911	C	JP
912	DEVICE ATTRIBUTE INFORMATION TAG	
913	COLOR	TRUE
914	IP ADDRESS	192.1.2.1

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FIG. 7

	900	101	102	103	104	105
902	NM	LBP1110	MFP6550	LBP3310	LBP3310	SCN2160
903	MAP	10X+10Y	5X+30Y	10X+10Y	15X+25Y	5X+5Y
904	DV	PRINTER	MFP	PRINTER	PRINTER	SCANER
905	BL	2-1	2-1	2-2	1-1	1-2
906	FL	2F	2F	2F	1F	1F
907	BU	AA BUILDING	AA BUILDING	AA BUILDING	AA BUILDING	AA BUILDING
908	OP	EXTEND	EXTEND	EXTEND	EXTEND	EXTEND
909	BR	TOKYO BRANCH	TOKYO BRANCH	TOKYO BRANCH	TOKYO BRANCH	TOKYO BRANCH
910	O	ABC TRADING CO LTD.	ABC TRADING CO LTD.	ABC TRADING CO LTD.	ABC TRADING CO LTD.	ABC TRADING CO LTD.
911	C	JP	JP	JP	JP	JP
913	COLOR	TRUE	FALSE	FALSE	FALSE	TRUE
914	IP ADDRESS	192.1.2.1	192.1.2.10	192.1.2.100	192.1.2.101	192.1.2.200

FIG. 8

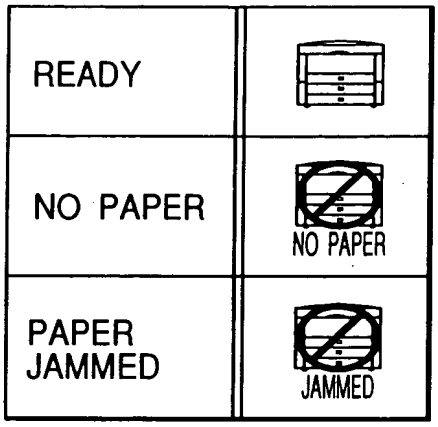

FIG. 9

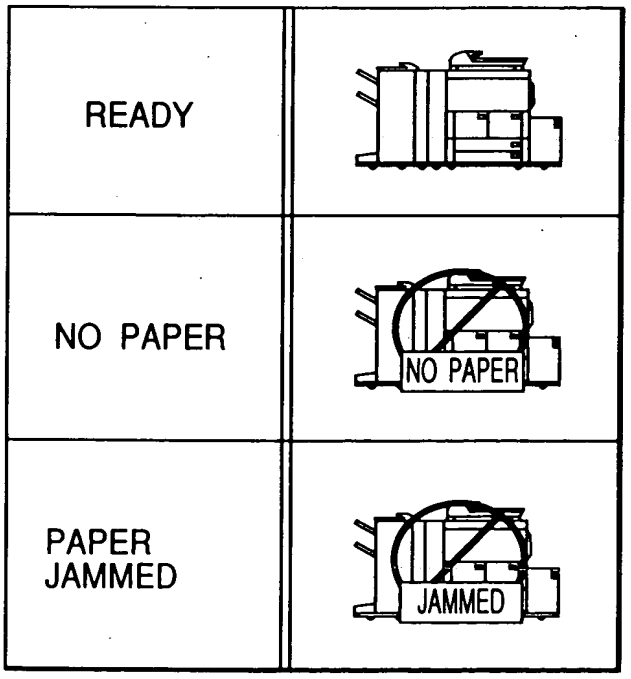

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FIG. 10

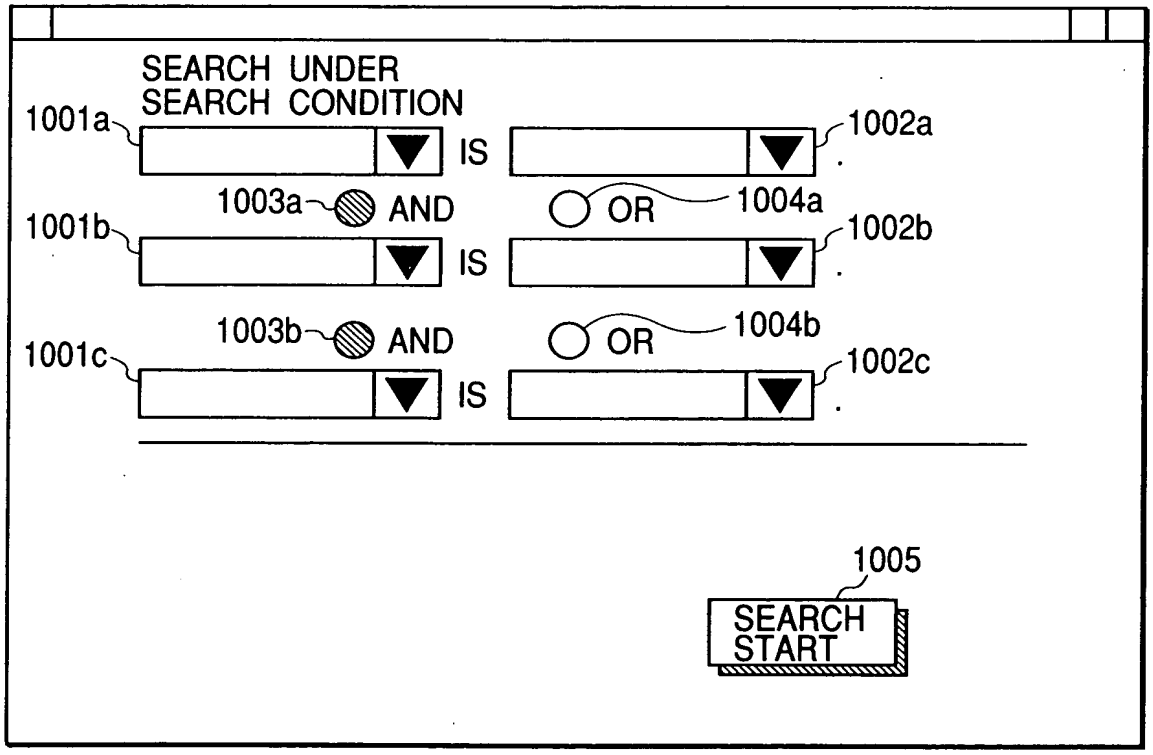
SEARCH UNDER
SEARCH CONDITION
1001a
IS
1002a
1003a
AND
OR
1004a
1001b
IS
1002b
1003b
AND
OR
1004b
1001c
IS
1002c
1005
SEARCH
START

FIG. 11

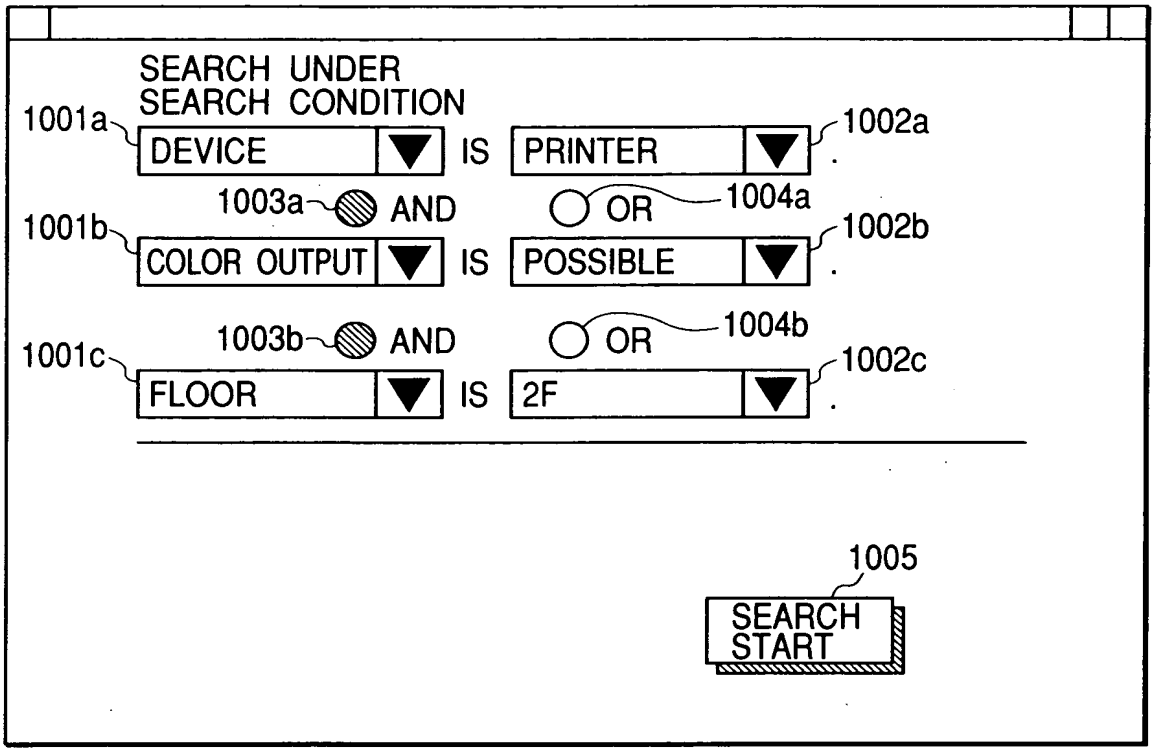

FIG. 12

SEARCH CONDITION FORMULA

(&(DV=PRINTER)
(COLOR=TRUE)

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FIG. 13

NM	LBP1110
MAP	10X+10Y
DV	PRINTER
BL	2-1
FL	2F
BU	AA BUILDING
OP	EXTEND
BR	TOKYO BRANCH
O	ABC TRADING CO LTD.
C	JP
COLOR	TRUE
IP ADDRESS	192.1.2.1

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FIG. 14

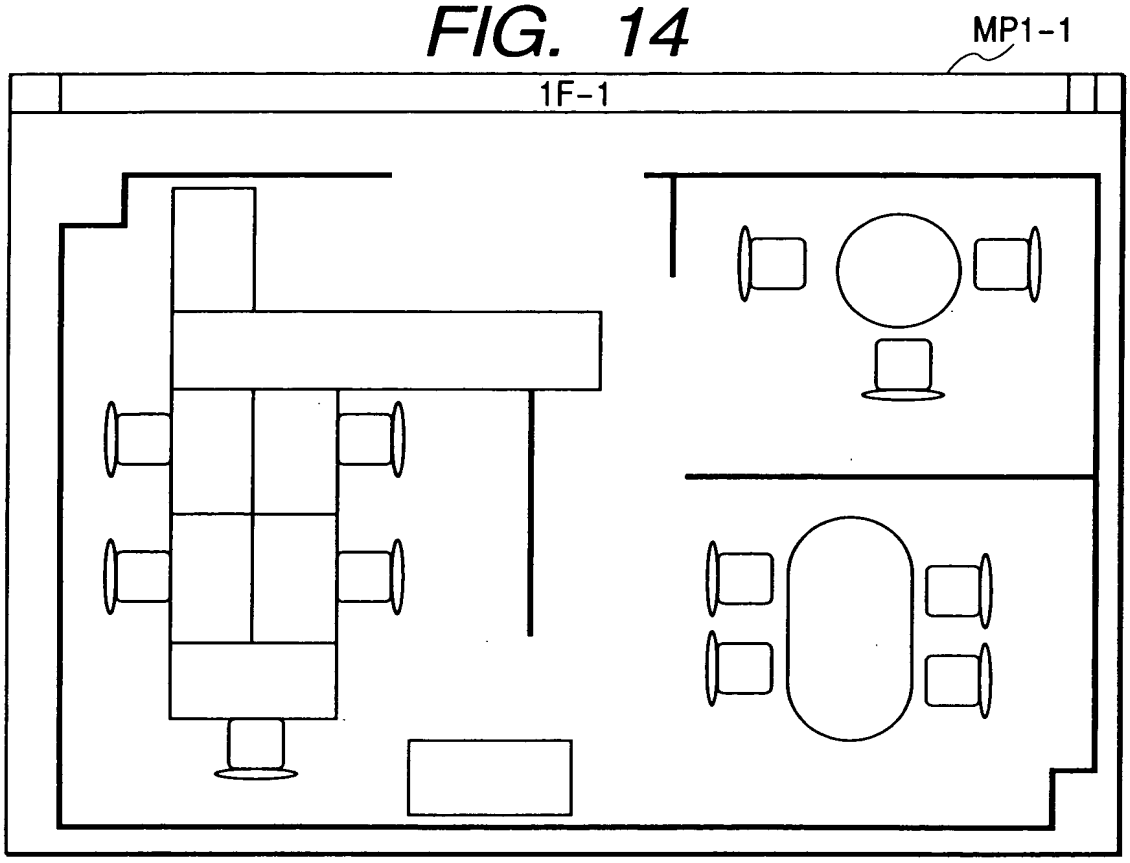
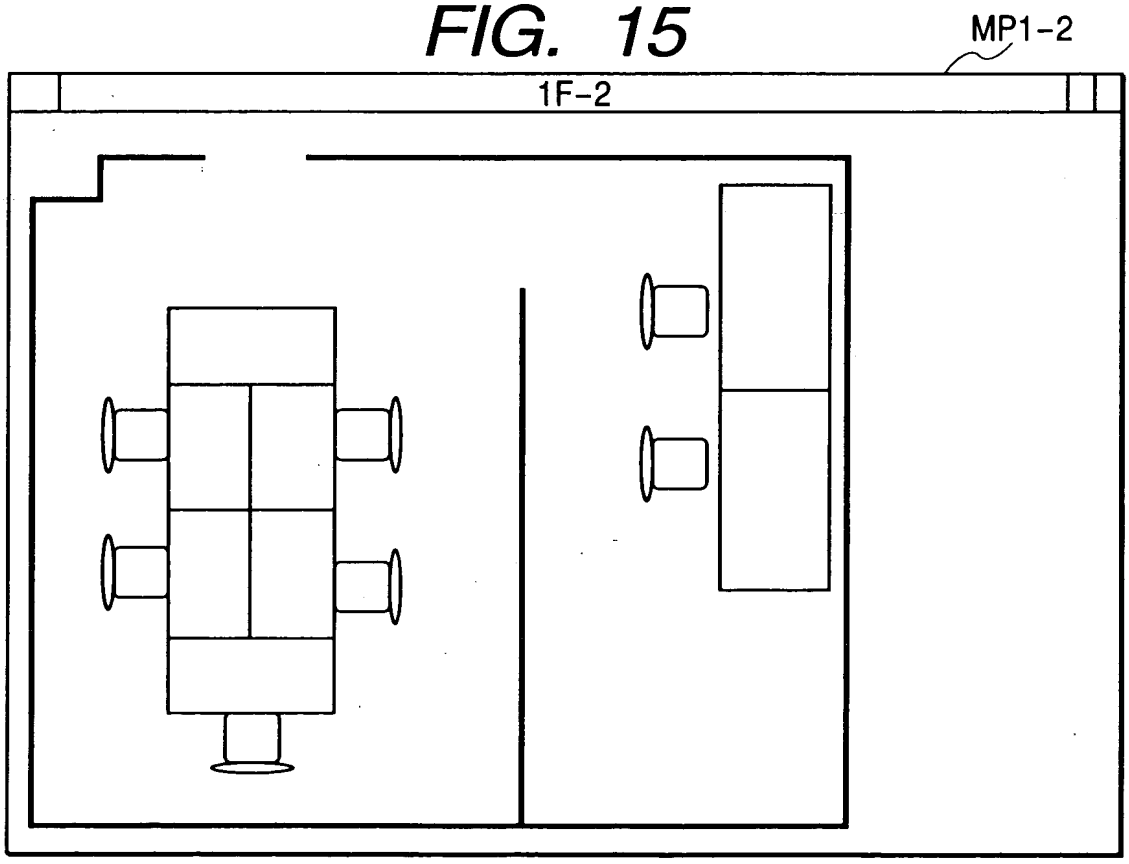


FIG. 15



US-2005-0256756-A1

FIG. 16

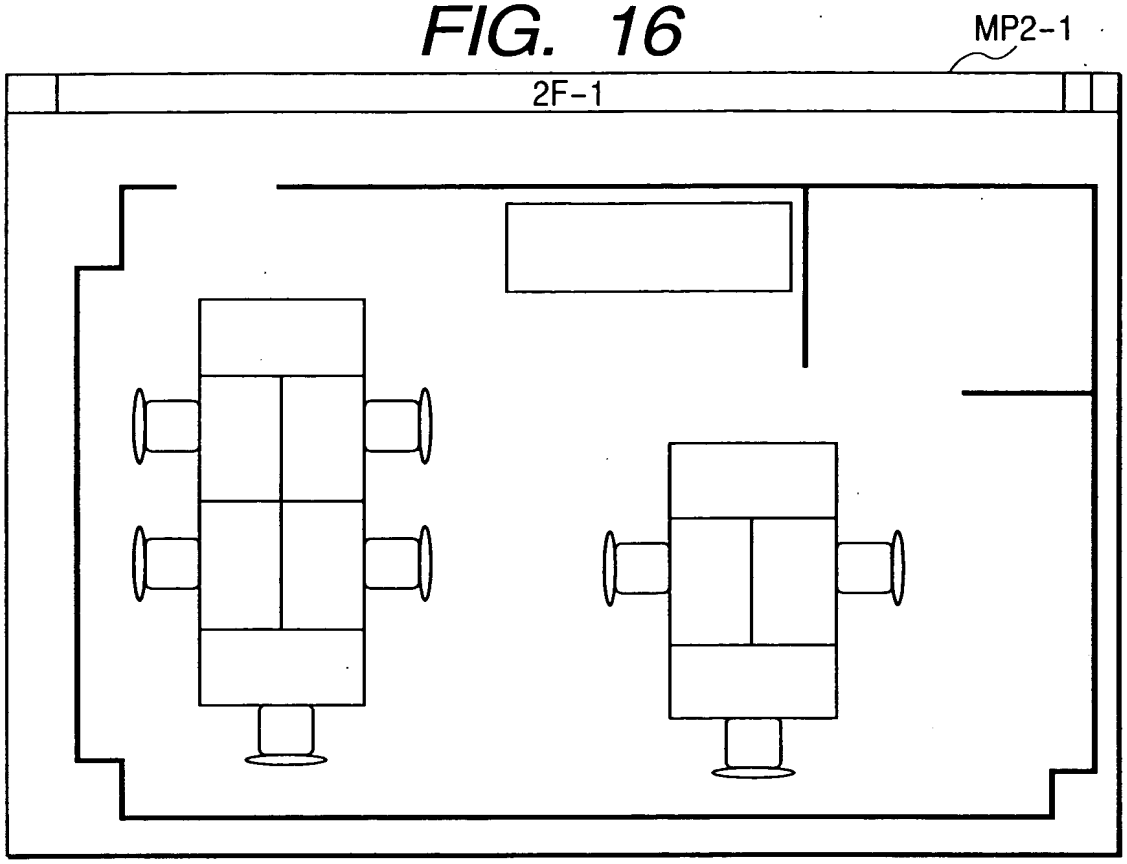


FIG. 17

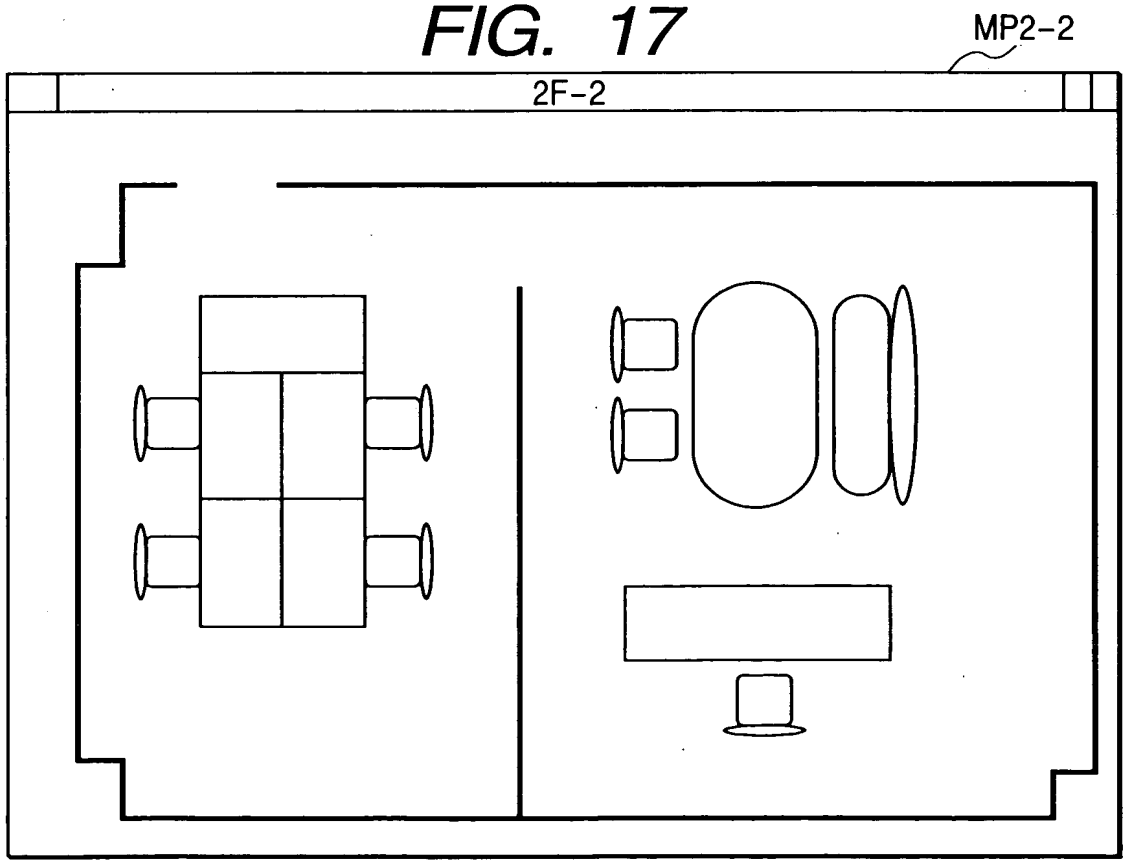


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FIG. 18

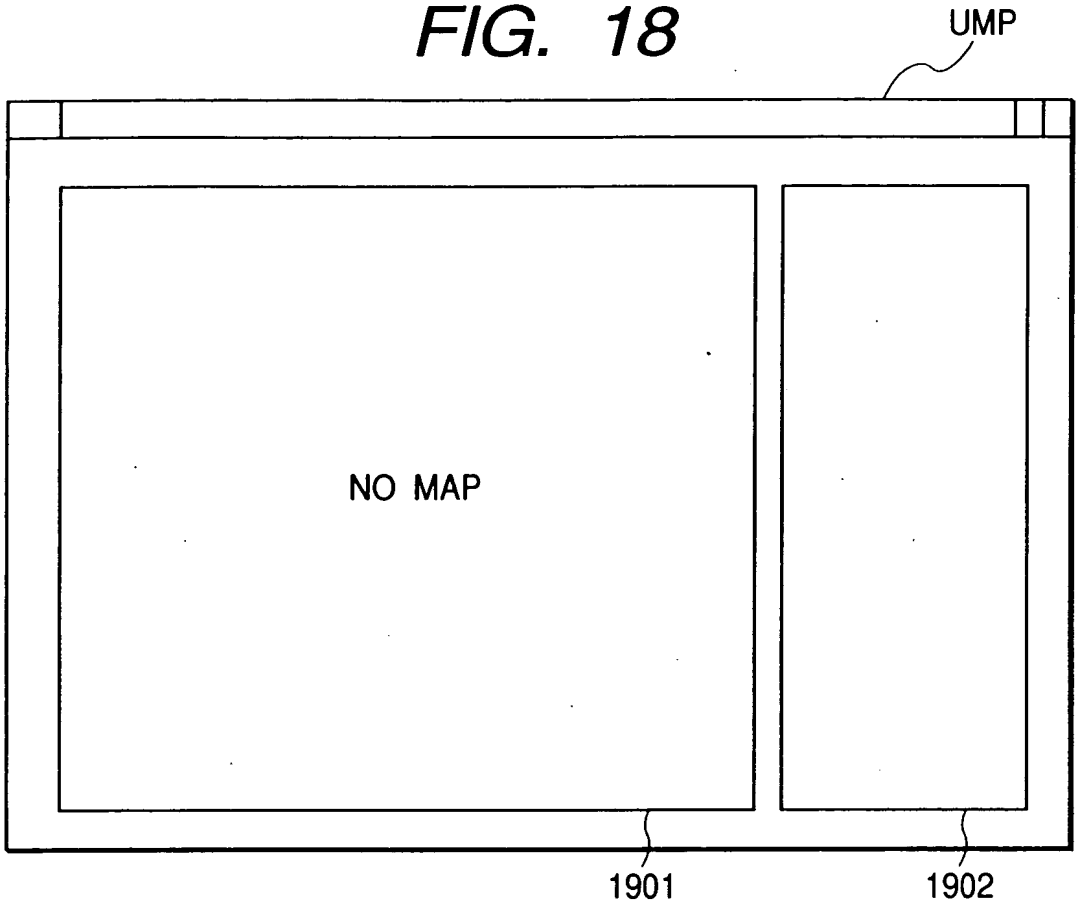

FIG. 19

C=JP, O=ABC TRADING CO LTD.,
BR=TOKYO BRANCH, OP=EXTEND,
BU=AA BUILDING

1401

1402 BL	1403 BITMAP
1-1	MP1-1
1-2	MP2-1
2-1	MP2-2
2-2	UMP
ETC	UMP

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FIG. 20

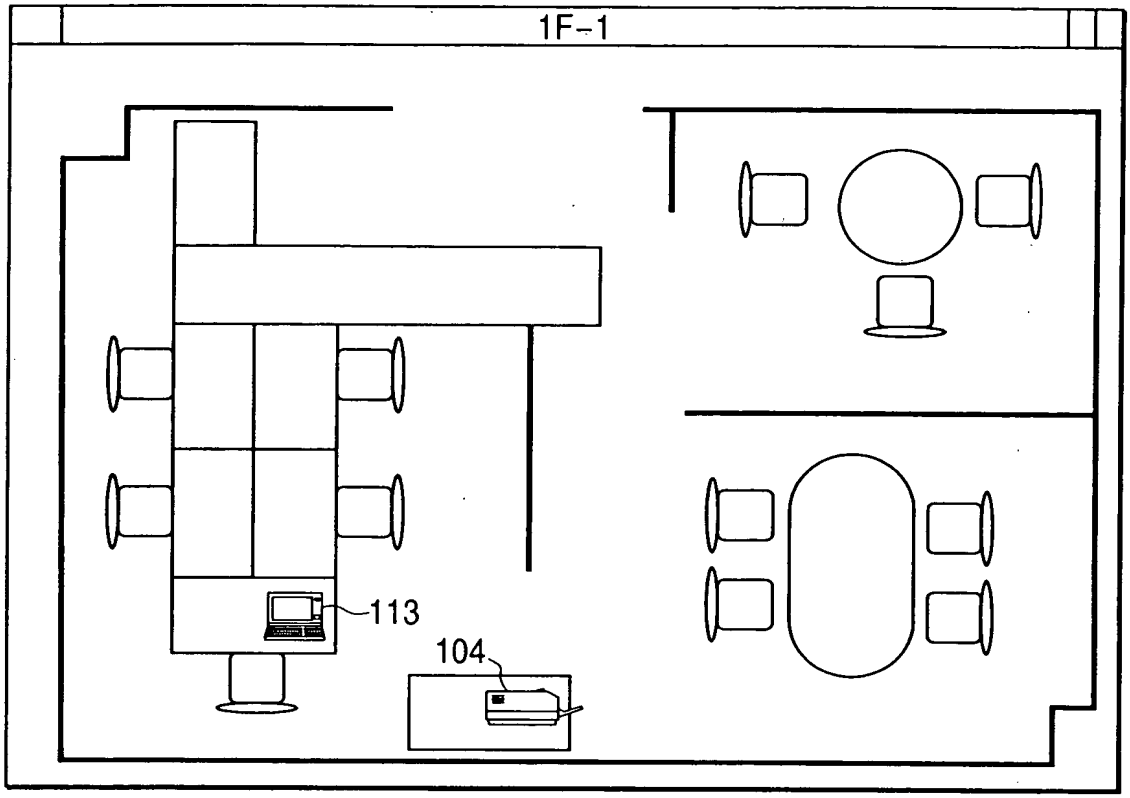

FIG. 21

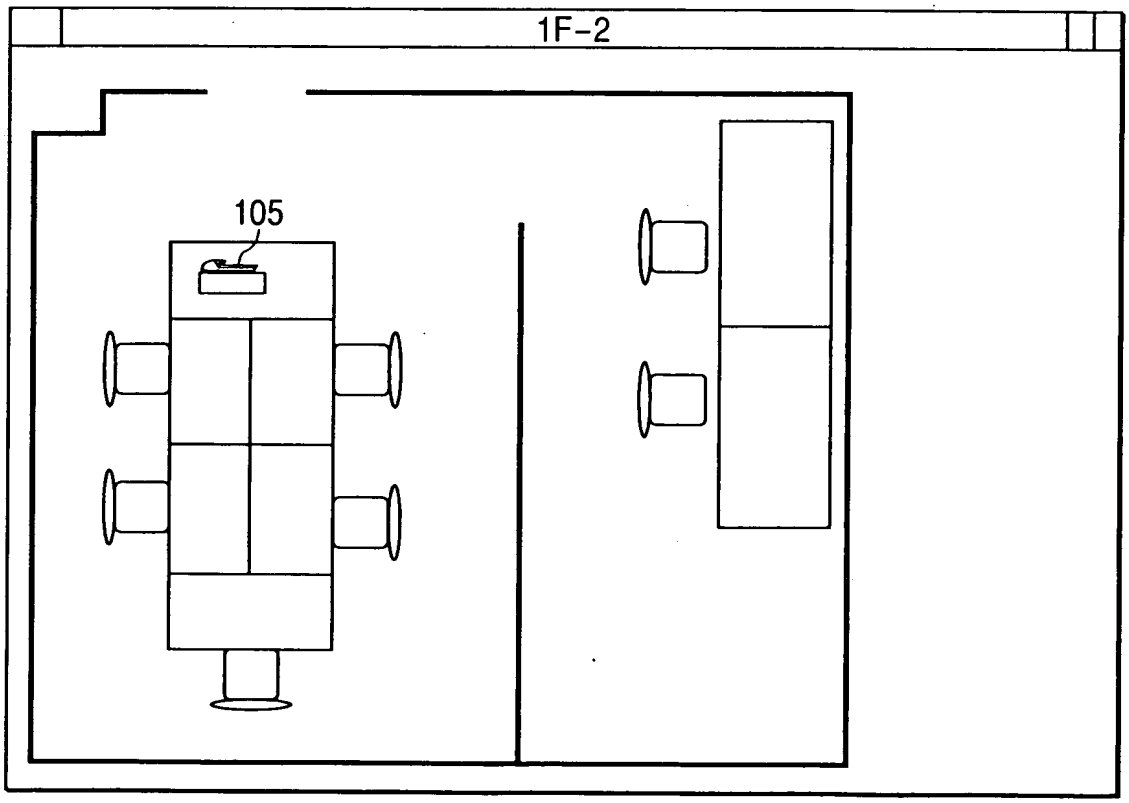

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FIG. 22

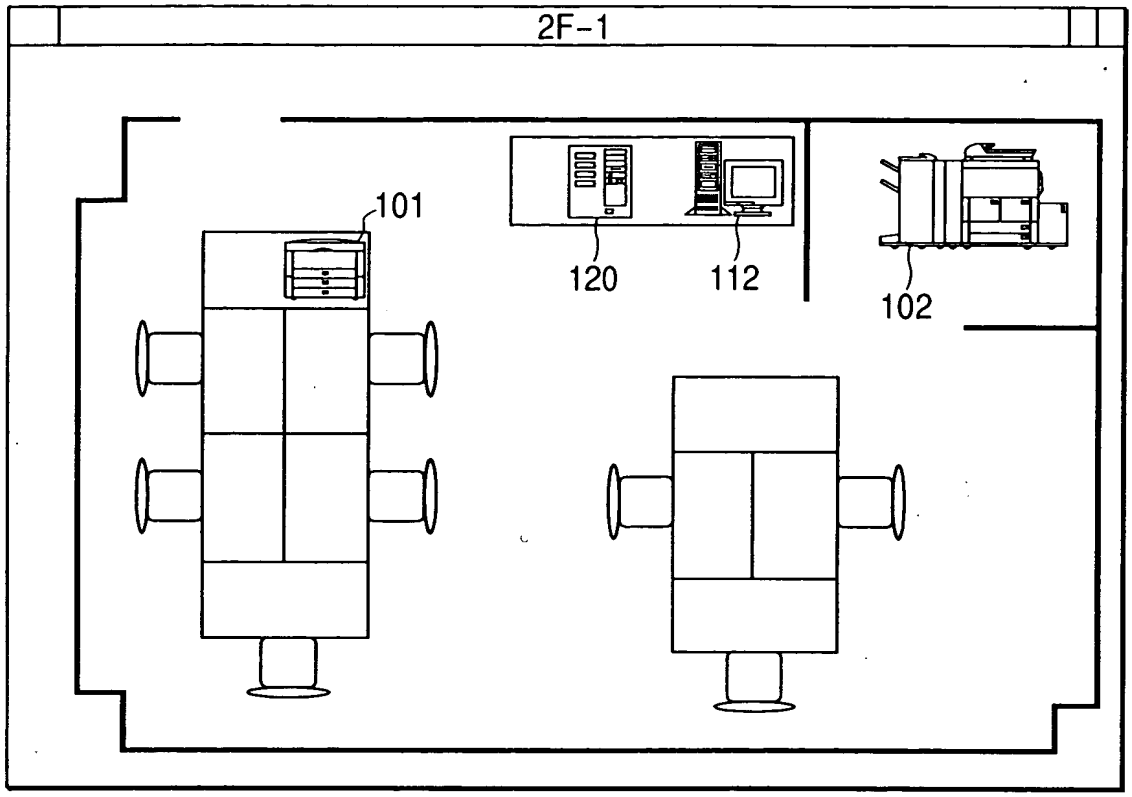

FIG. 23

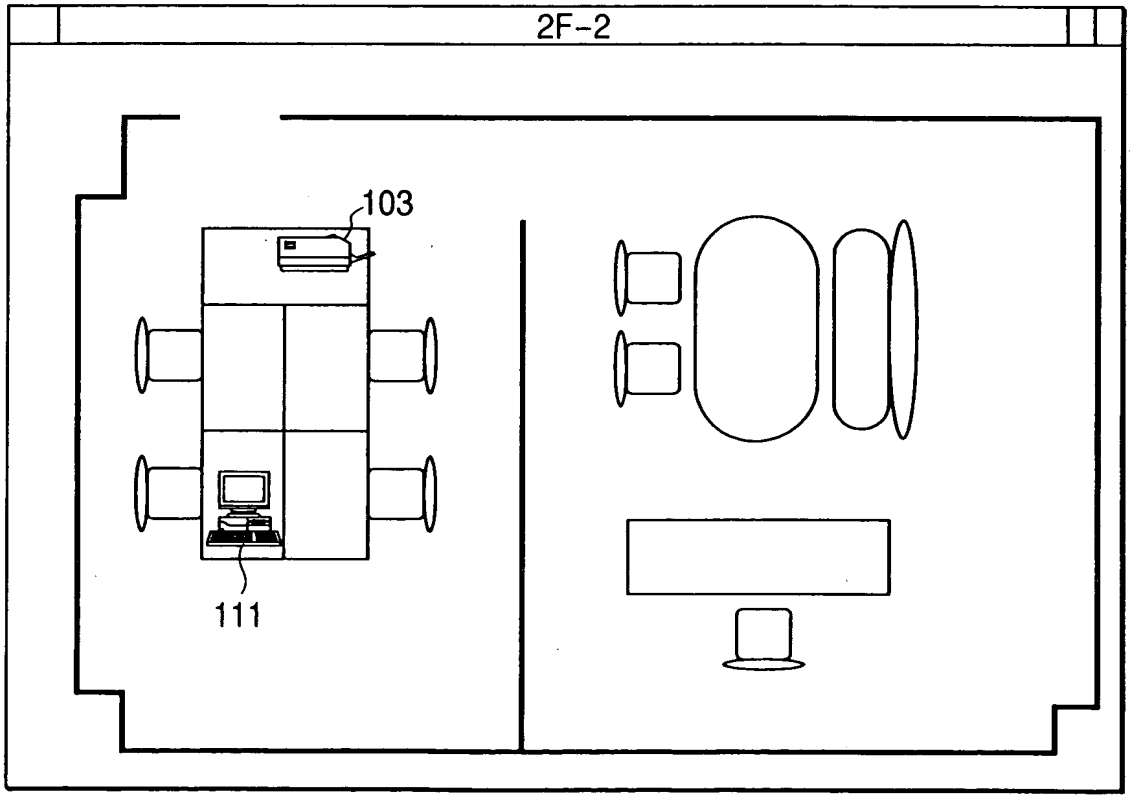

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FIG. 24

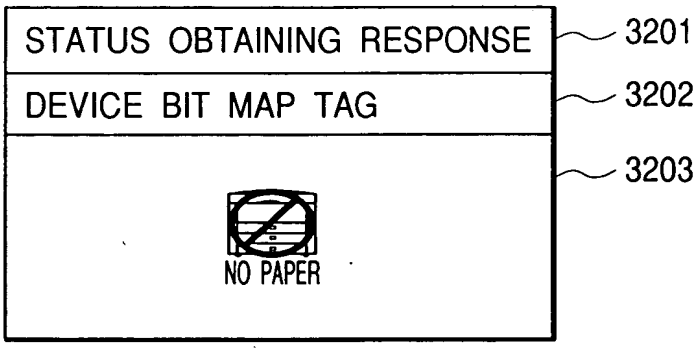

FIG. 25

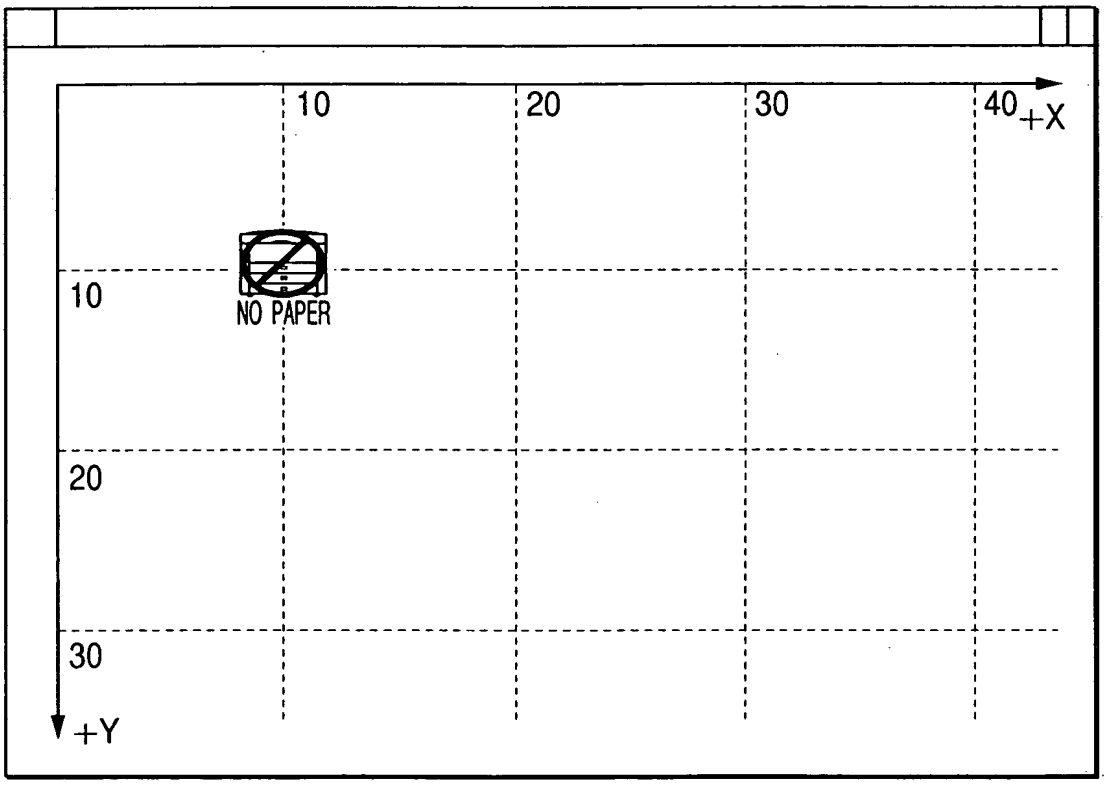

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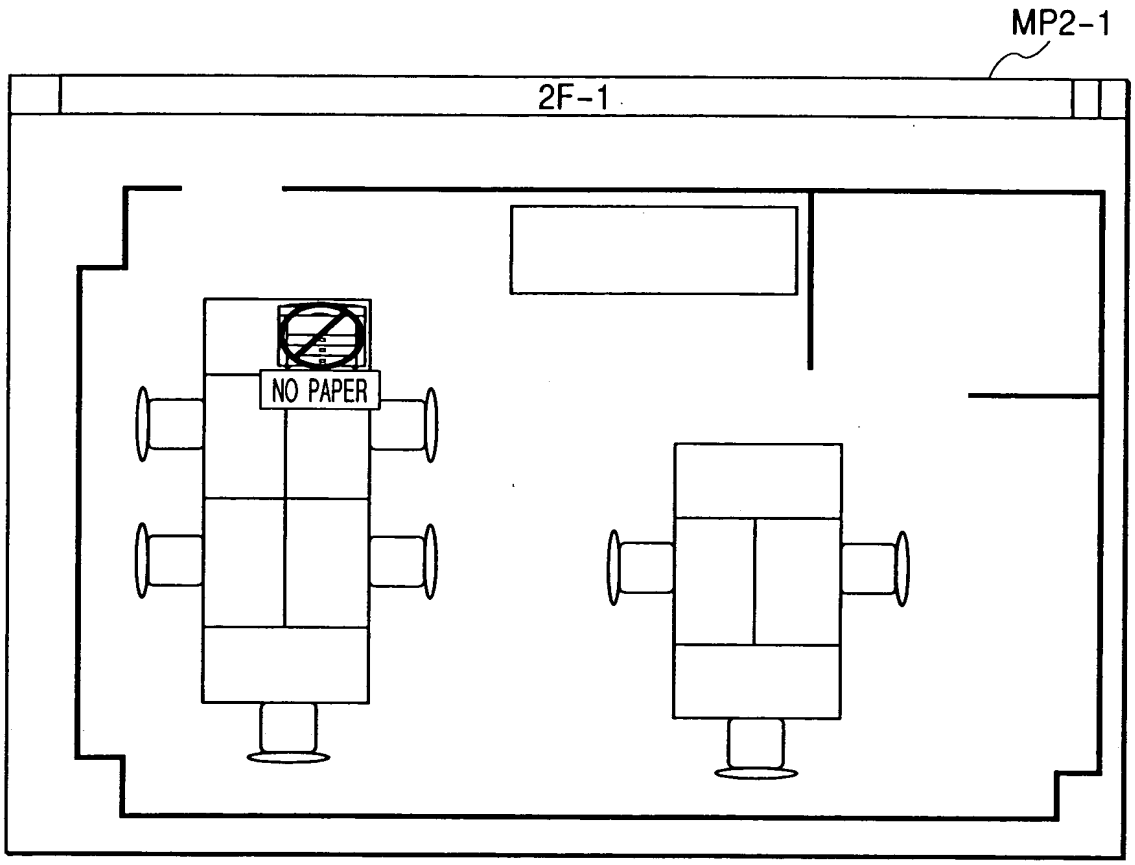
FIG. 26



09951950 "080708

FIG. 27

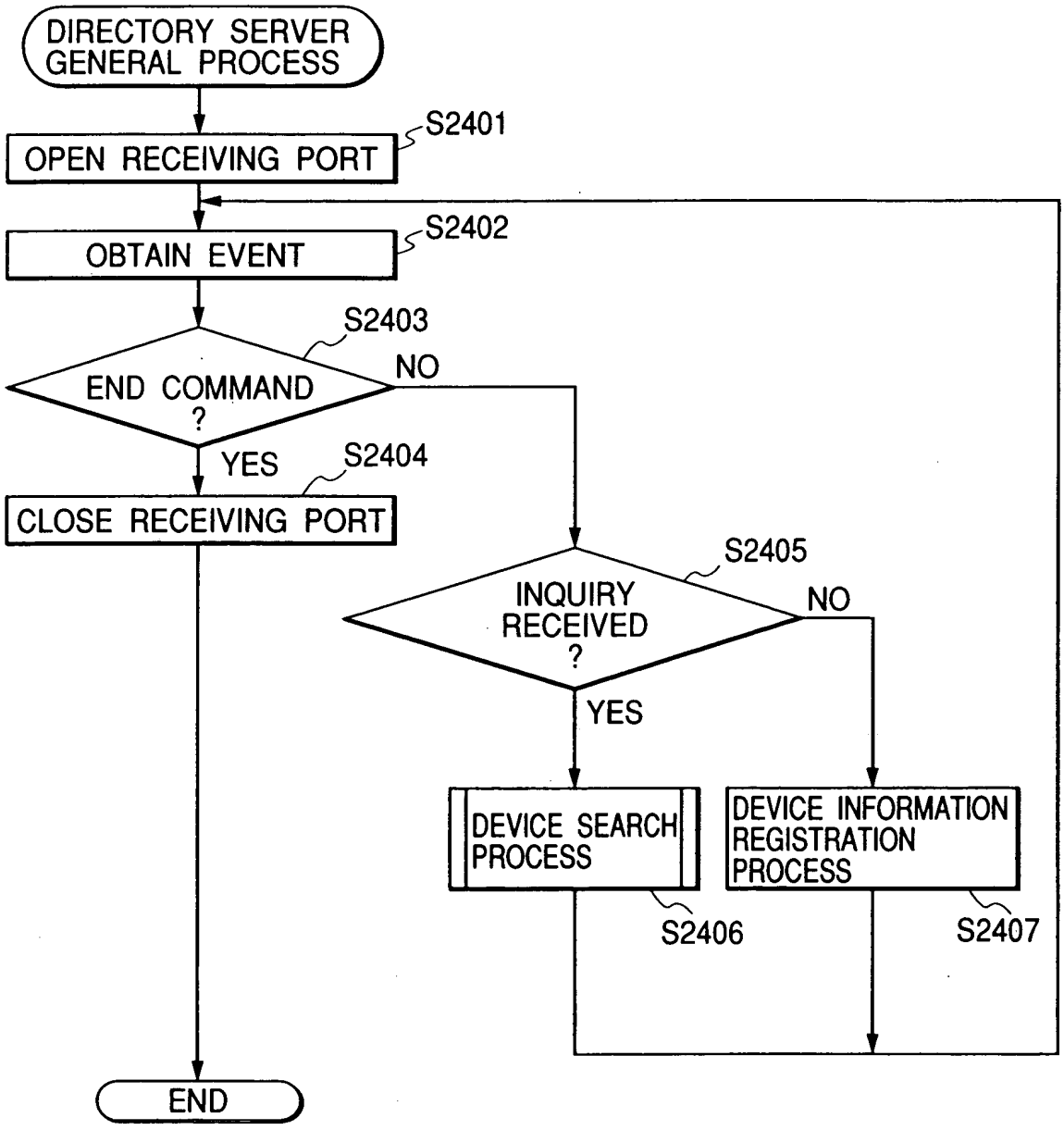


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FIG. 28

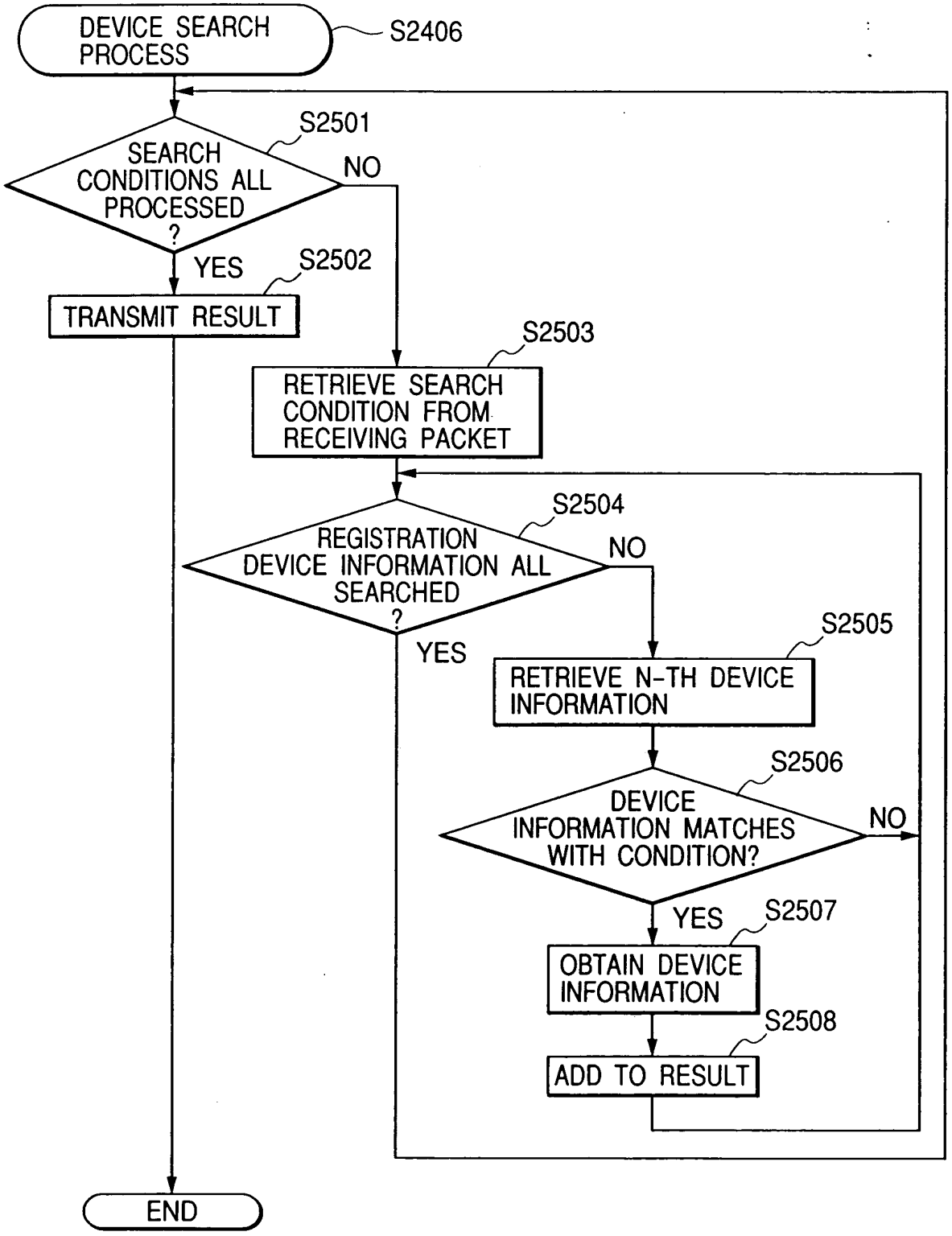
DEVICE SEARCH PROCESS
S2406
S2501
SEARCH CONDITIONS ALL PROCESSED ?
NO
YES
S2502
TRANSMIT RESULT
S2503
RETRIEVE SEARCH CONDITION FROM RECEIVING PACKET
S2504
REGISTRATION DEVICE INFORMATION ALL SEARCHED ?
NO
YES
S2505
RETRIEVE N-TH DEVICE INFORMATION
S2506
DEVICE INFORMATION MATCHES WITH CONDITION?
NO
YES
S2507
OBTAIN DEVICE INFORMATION
S2508
ADD TO RESULT
END

FIG. 29

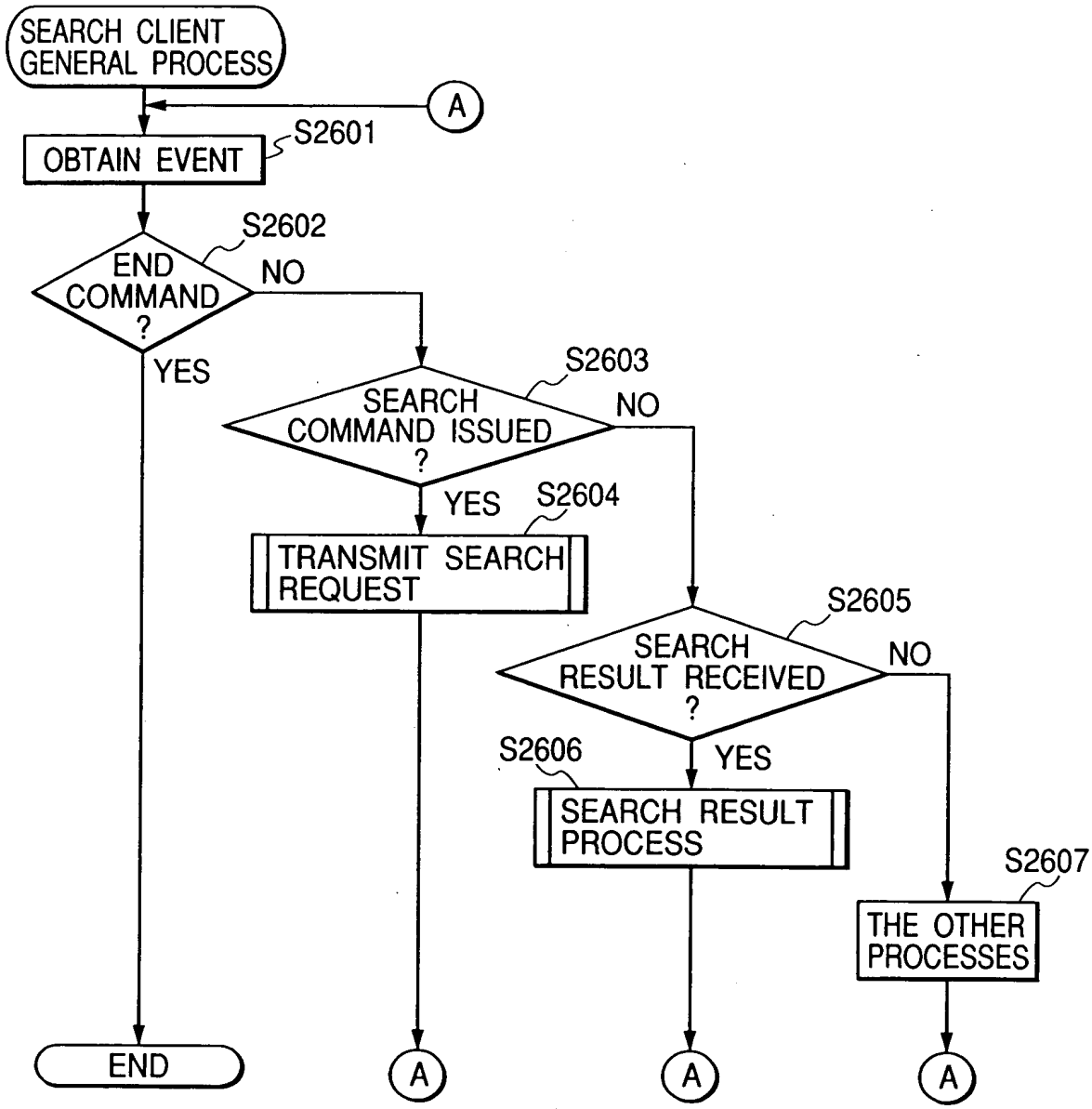
SEARCH CLIENT GENERAL PROCESS
A
OBTAIN EVENT
S2601
S2602
END COMMAND ?
NO
YES
S2603
SEARCH COMMAND ISSUED ?
NO
YES
S2604
TRANSMIT SEARCH REQUEST
S2605
SEARCH RESULT RECEIVED ?
NO
YES
S2606
SEARCH RESULT PROCESS
S2607
THE OTHER PROCESSES
END
A
A
A

FIG. 30

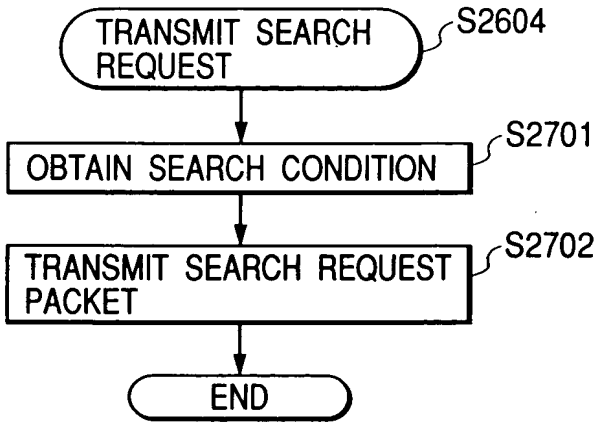

FIG. 31

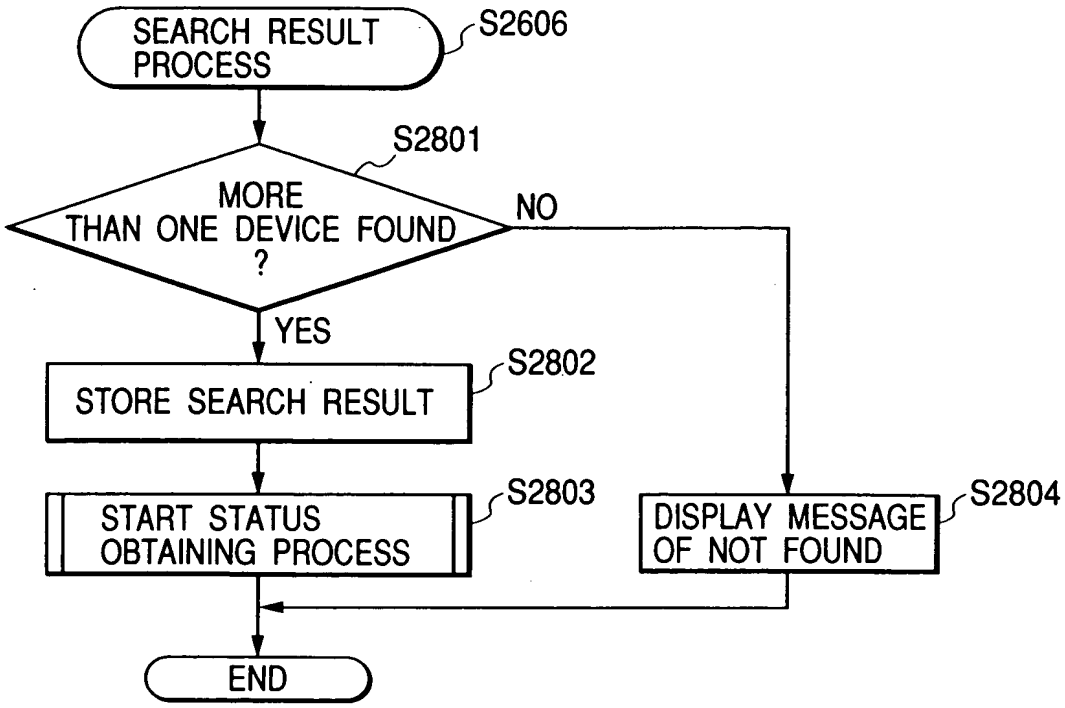

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FIG. 32

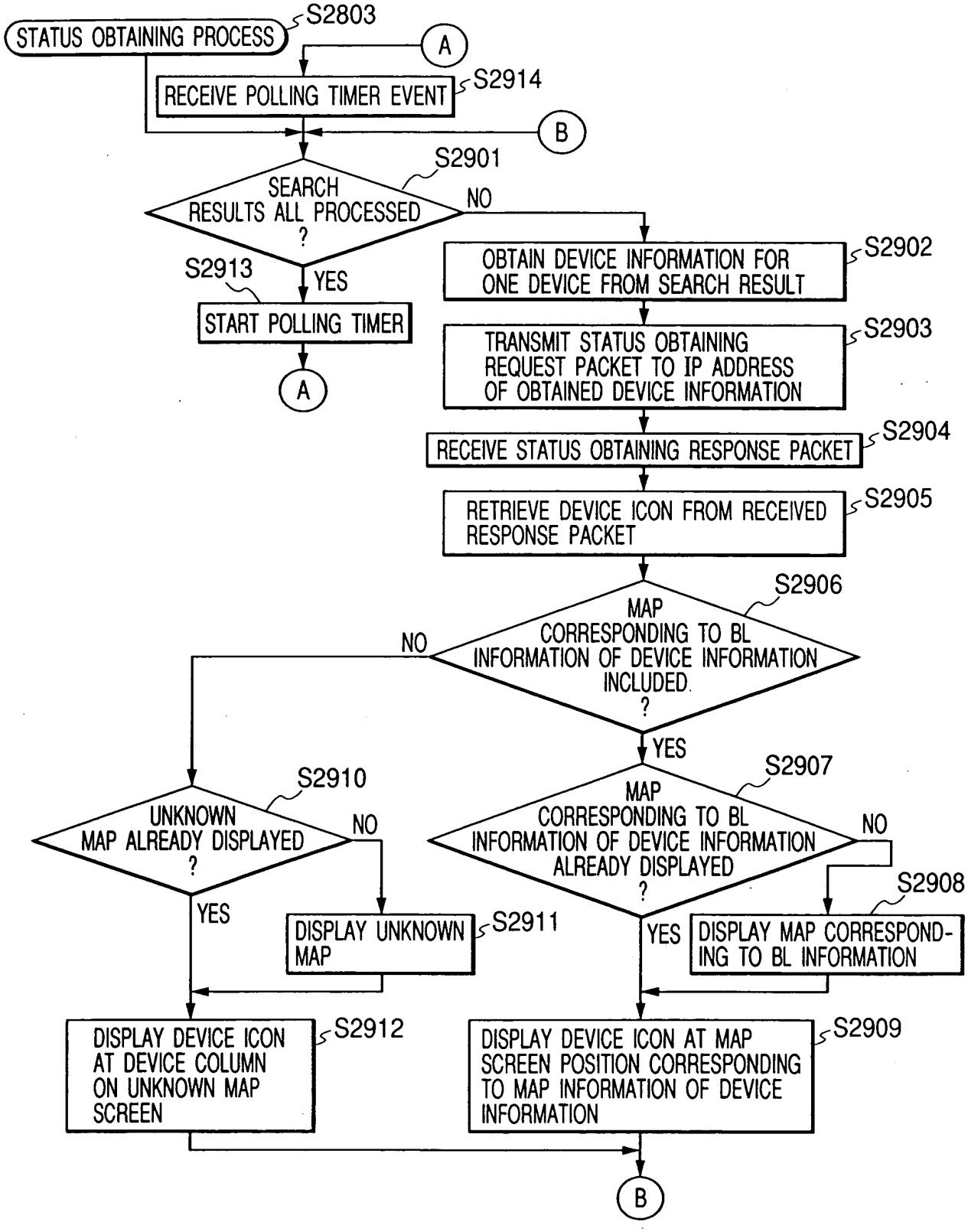

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FIG. 33

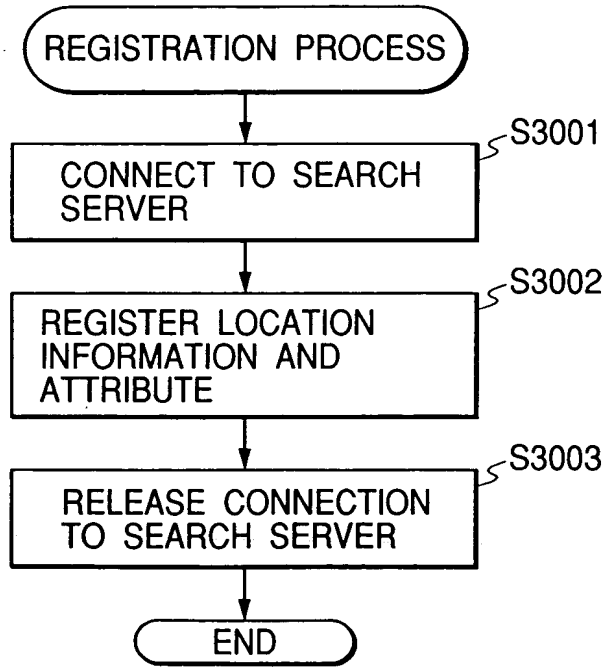

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FIG. 34

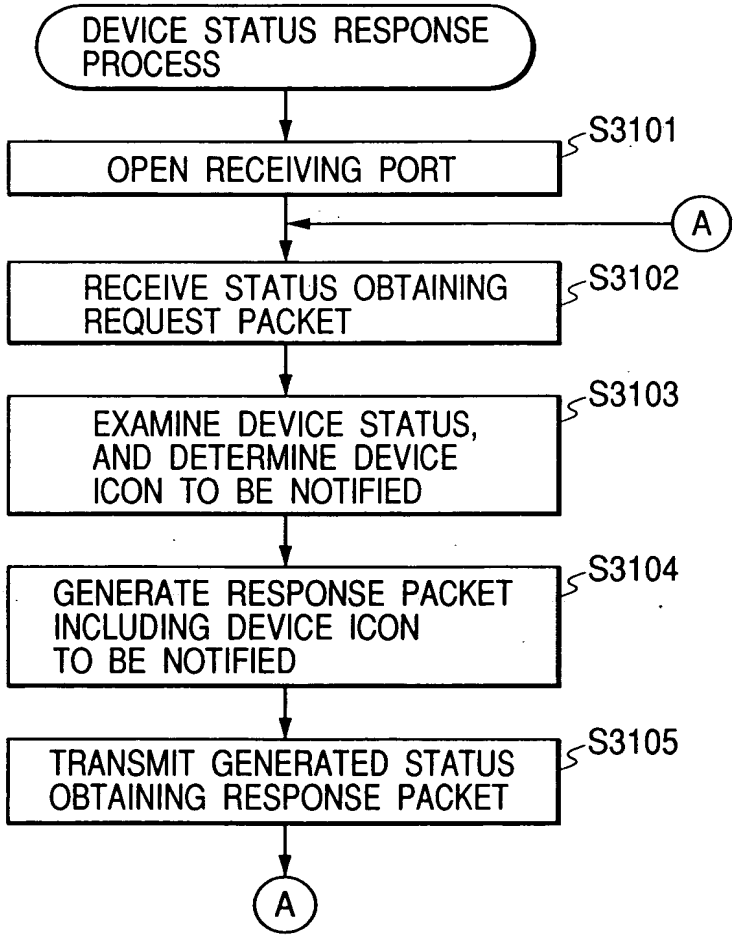
DEVICE STATUS RESPONSE PROCESS
S3101
OPEN RECEIVING PORT
A
S3102
RECEIVE STATUS OBTAINING REQUEST PACKET
S3103
EXAMINE DEVICE STATUS, AND DETERMINE DEVICE ICON TO BE NOTIFIED
S3104
GENERATE RESPONSE PACKET INCLUDING DEVICE ICON TO BE NOTIFIED
S3105
TRANSMIT GENERATED STATUS OBTAINING RESPONSE PACKET
A

FIG. 35

C	JP	JP	JP	JP	JP
O	ABC TRADING CO LTD.	ABC TRADING CO LTD.	ABC TRADING CO LTD.	ABC TRADING CO LTD.	ABC TRADING CO LTD.
BR		TOKYO BRANCH	TOKYO BRANCH	TOKYO BRANCH	TOKYO BRANCH
OP		EXTEND	EXTEND	EXTEND	EXTEND
BU			AA BUILDING	AA BUILDING	AA BUILDING
FL				2F	1F
BL					
MAP					
CORRESPOND-ING MAP	MP101 (FIG. 37)	MP102 (FIG. 39)	MP103 (FIG. 41)	MP104 (FIG. 43)	MP105 (FIG. 45)

C	JP	JP	JP	JP	–
O	ABC TRADING CO LTD.	ABC TRADING CO LTD.	ABC TRADING CO LTD.	ABC TRADING CO LTD.	–
BR	TOKYO BRANCH	TOKYO BRANCH	TOKYO BRANCH	TOKYO BRANCH	–
OP	EXTEND	EXTEND	EXTEND	EXTEND	–
BU	AA BUILDING	AA BUILDING	AA BUILDING	AA BUILDING	–
FL	1F	1F	2F	2F	–
BL	1-1	1-2	2-1	2-2	–
MAP					
CORRESPOND-ING MAP	MP1-1 (FIG. 14)	MP1-2 (FIG. 15)	MP2-1 (FIG. 16)	MP2-2 (FIG. 17)	UMP (FIG. 18)

FIG. 36

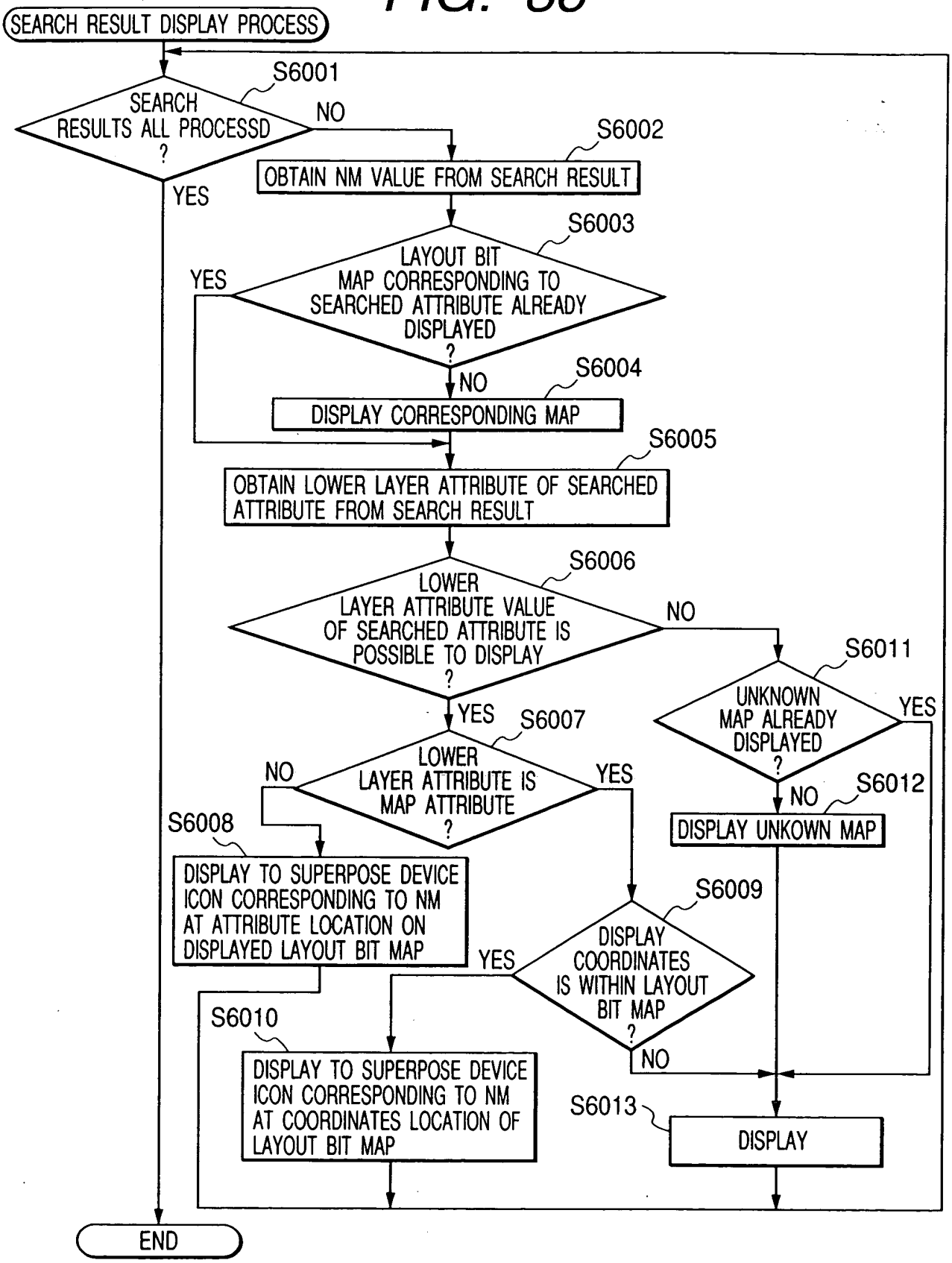

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FIG. 37

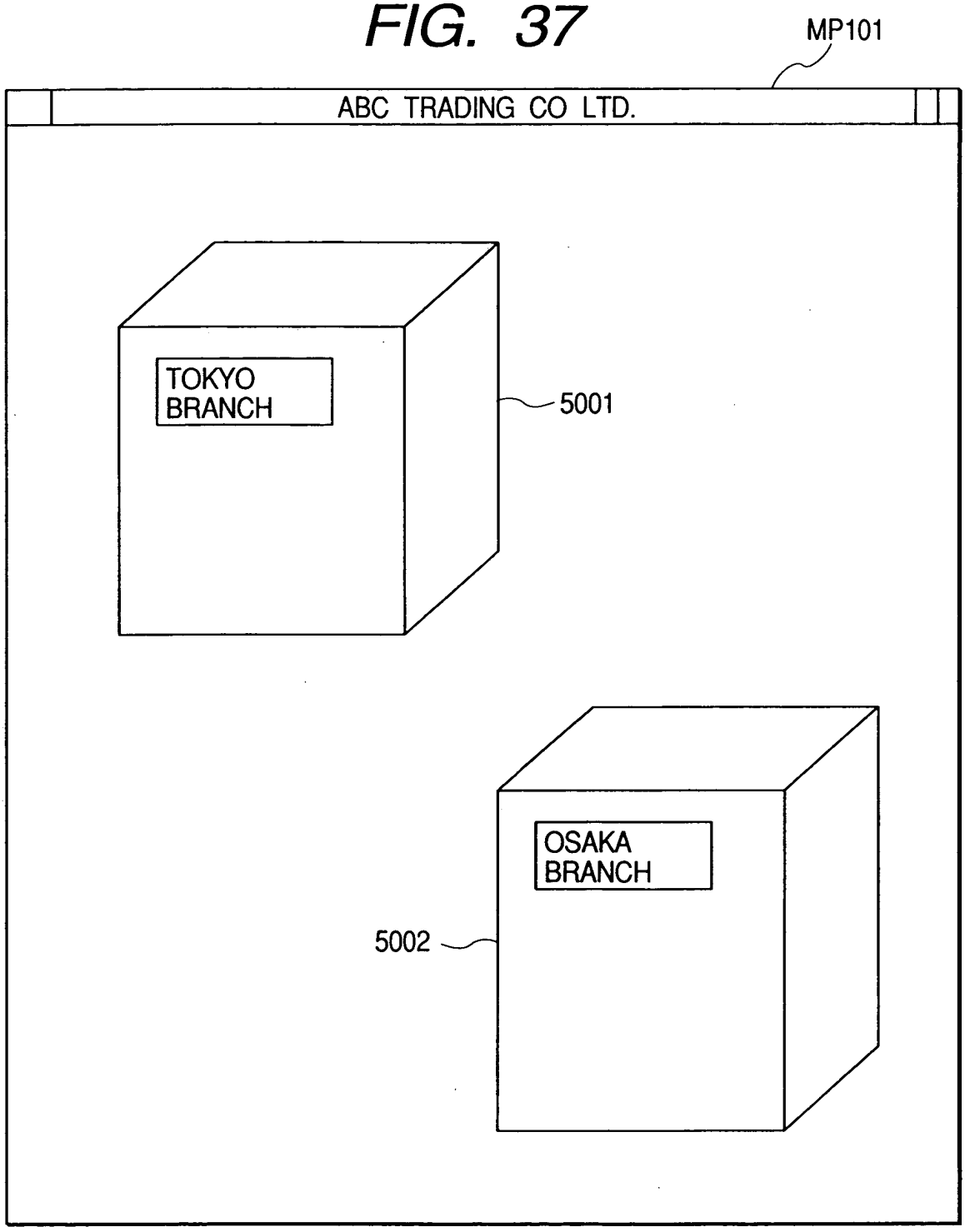
MP101
ABC TRADING CO LTD.
TOKYO BRANCH
5001
OSAKA BRANCH
5002

FIG. 38

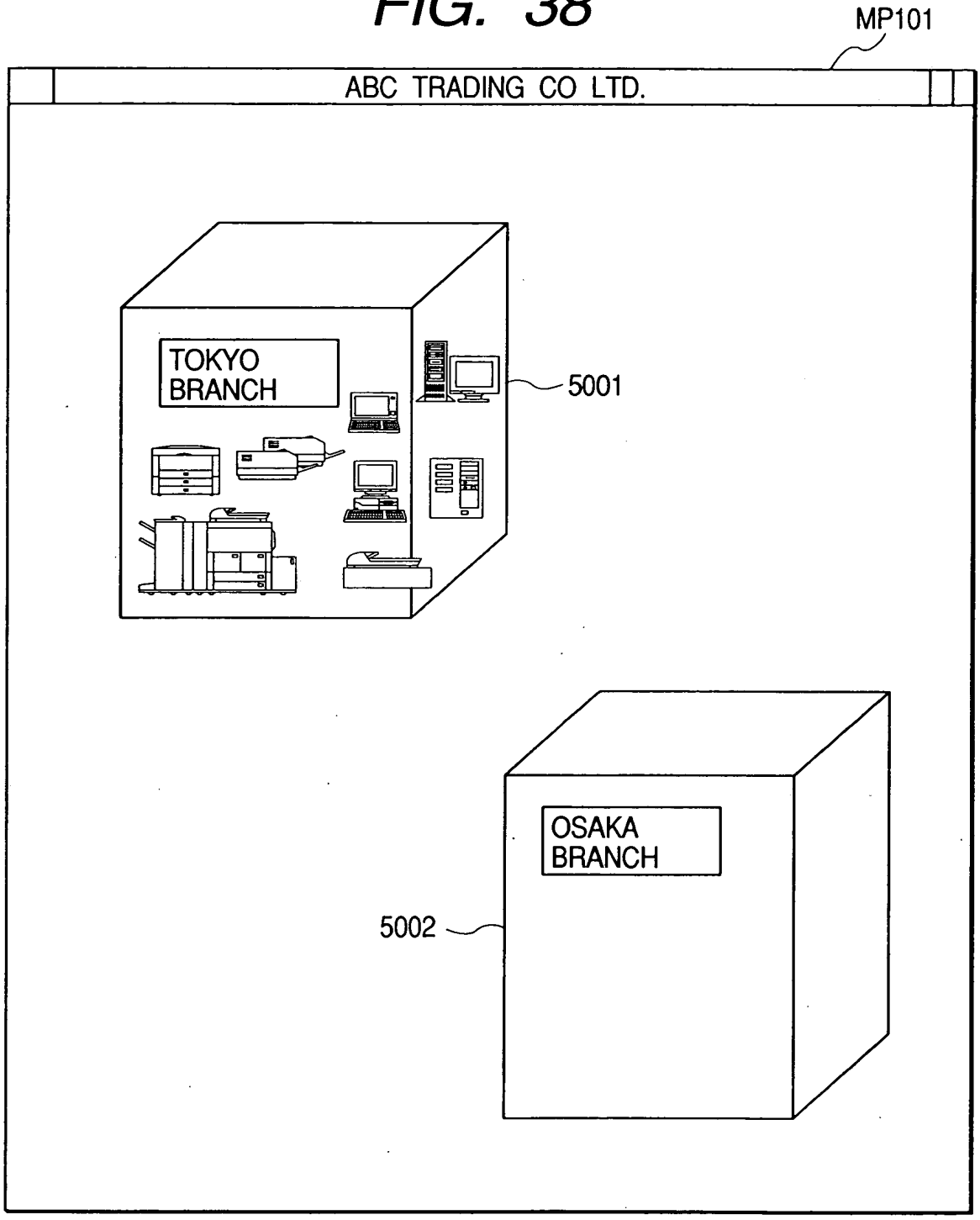

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FIG. 39

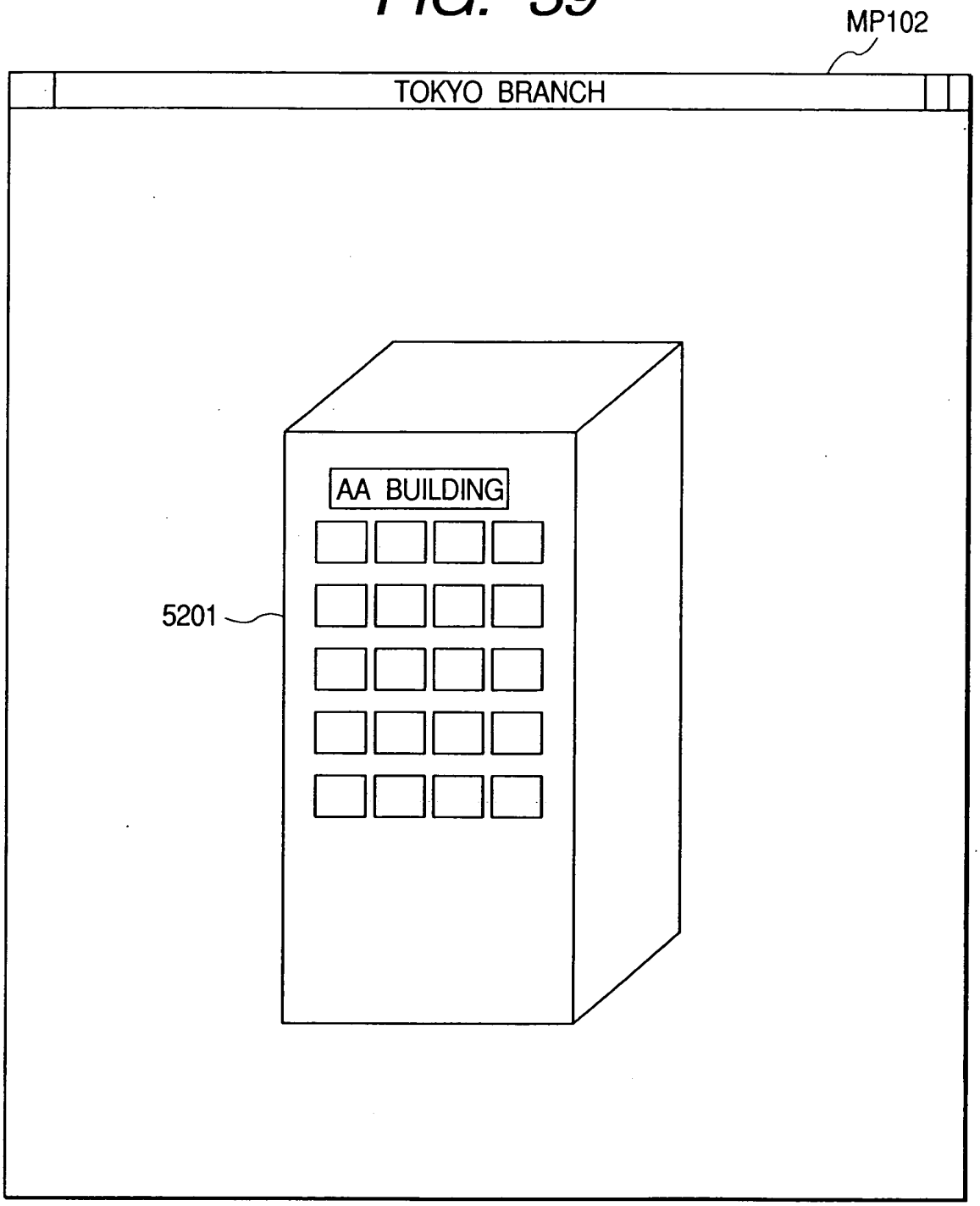

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FIG. 40

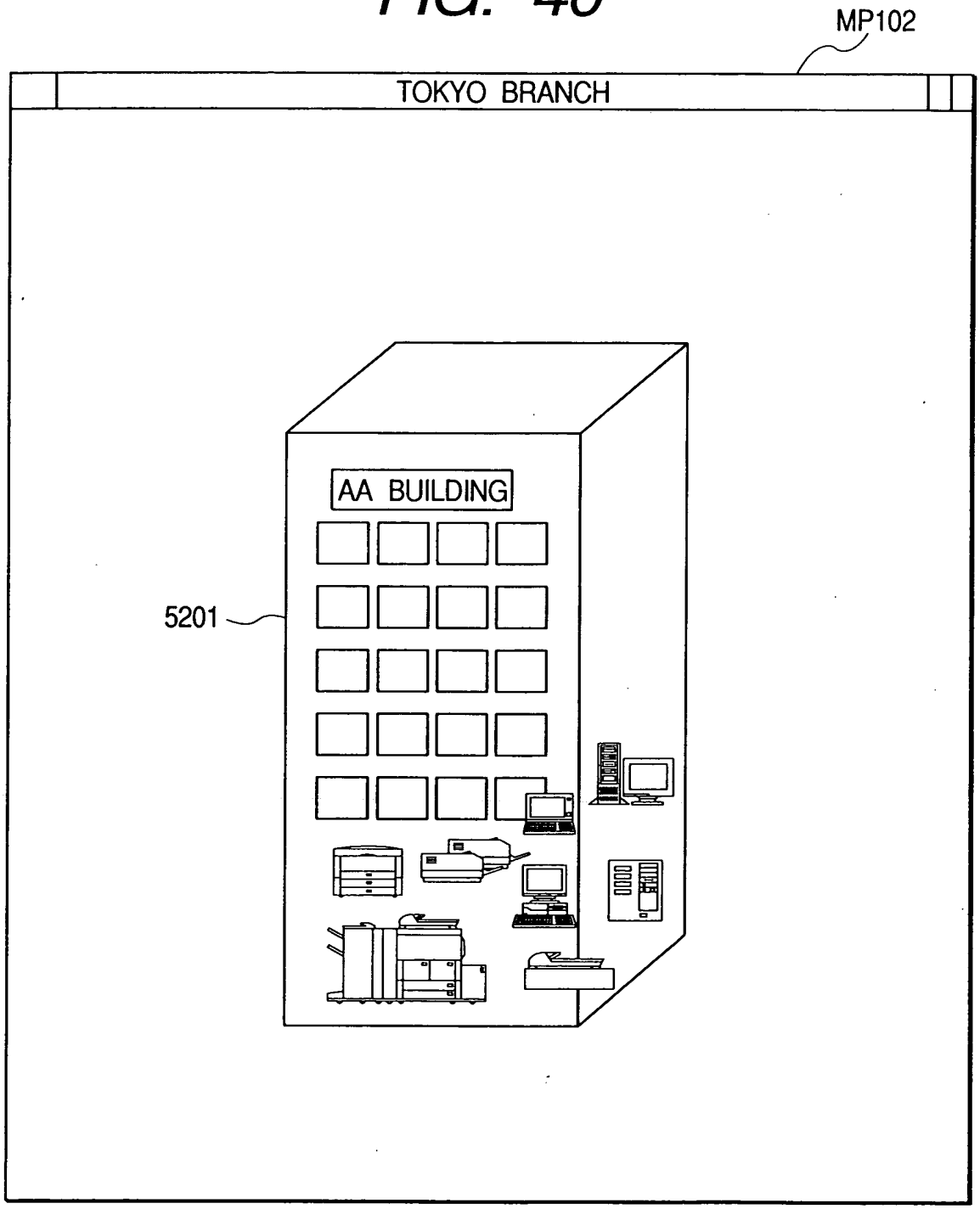

FIG. 41

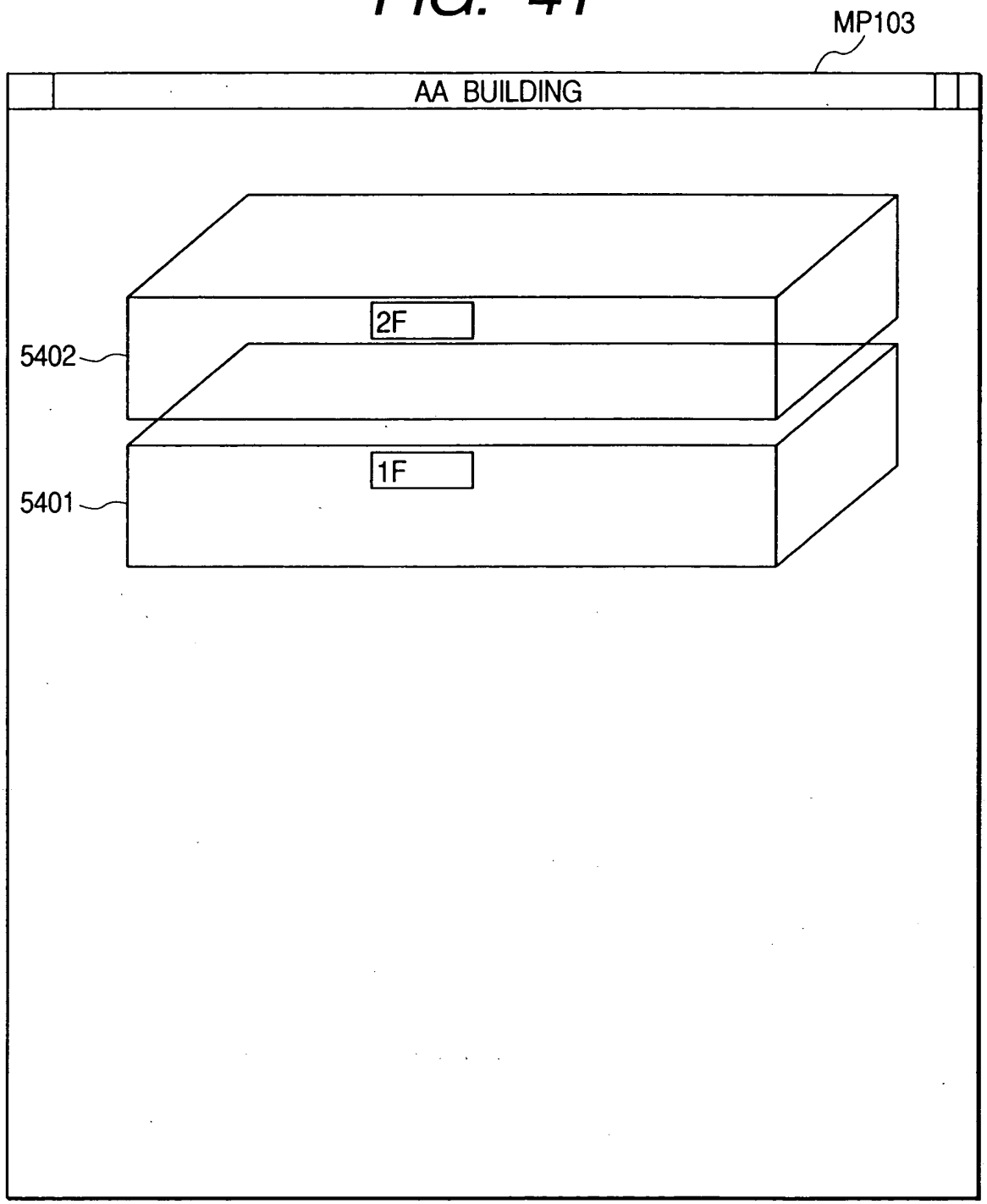

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FIG. 42

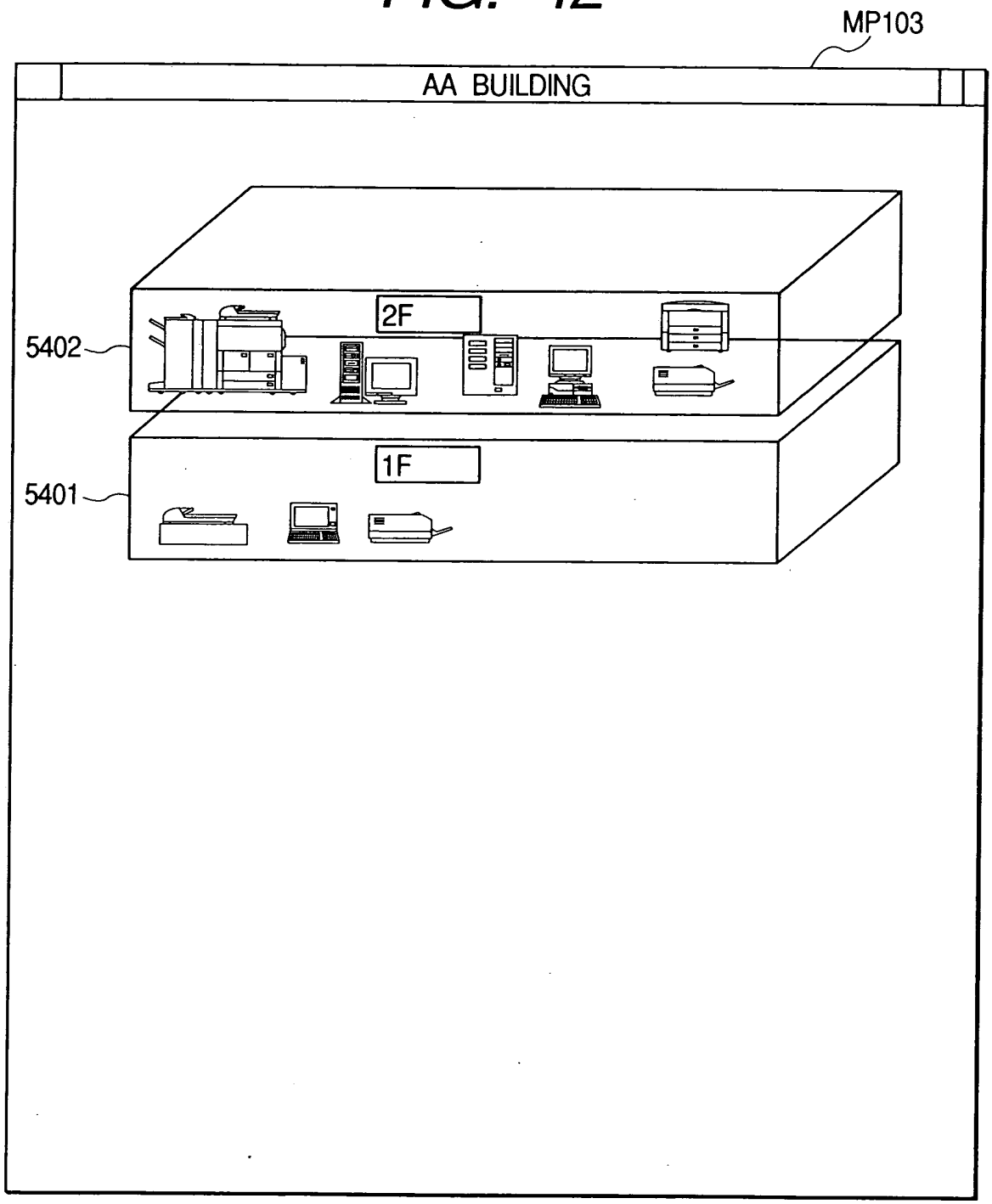

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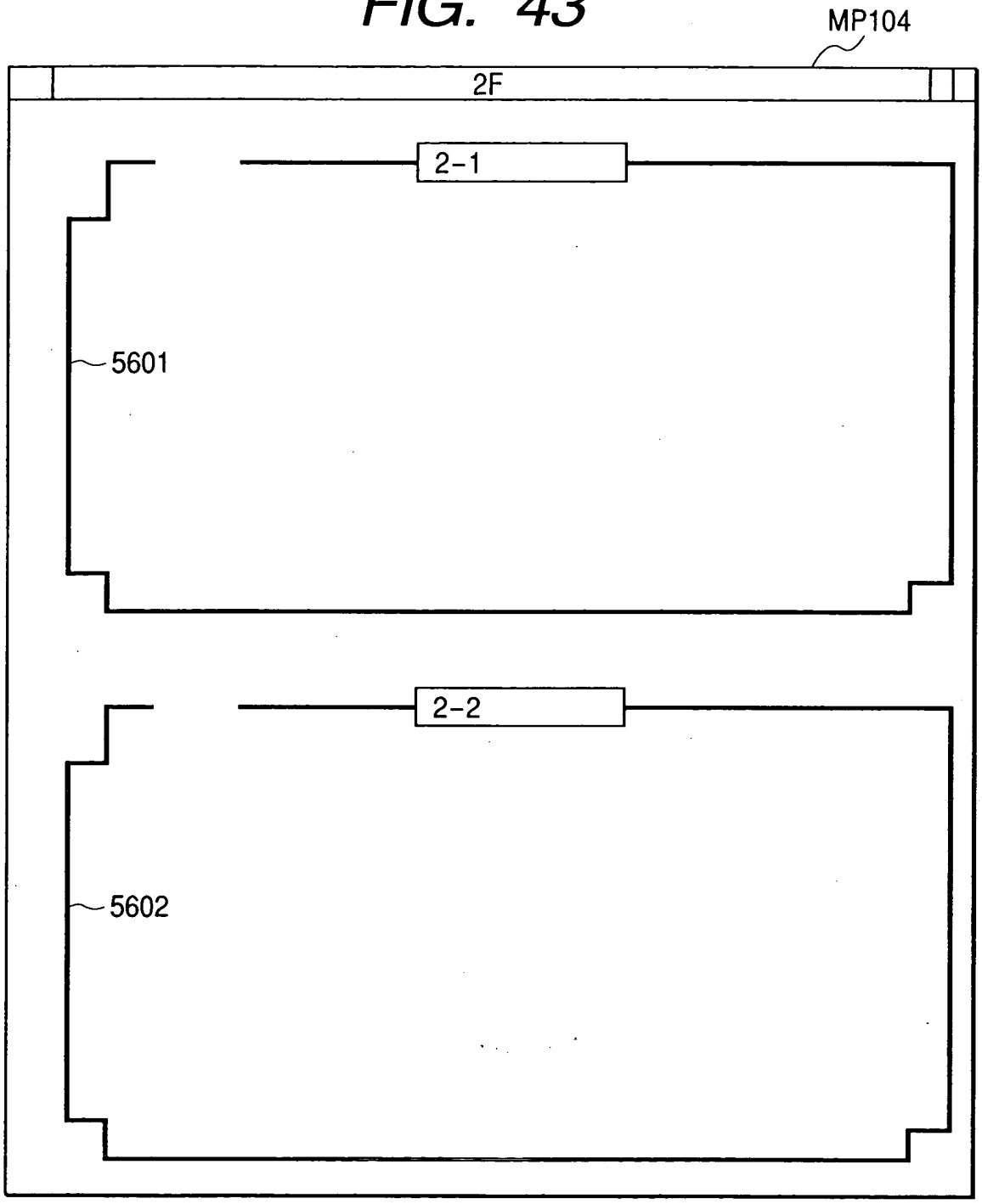
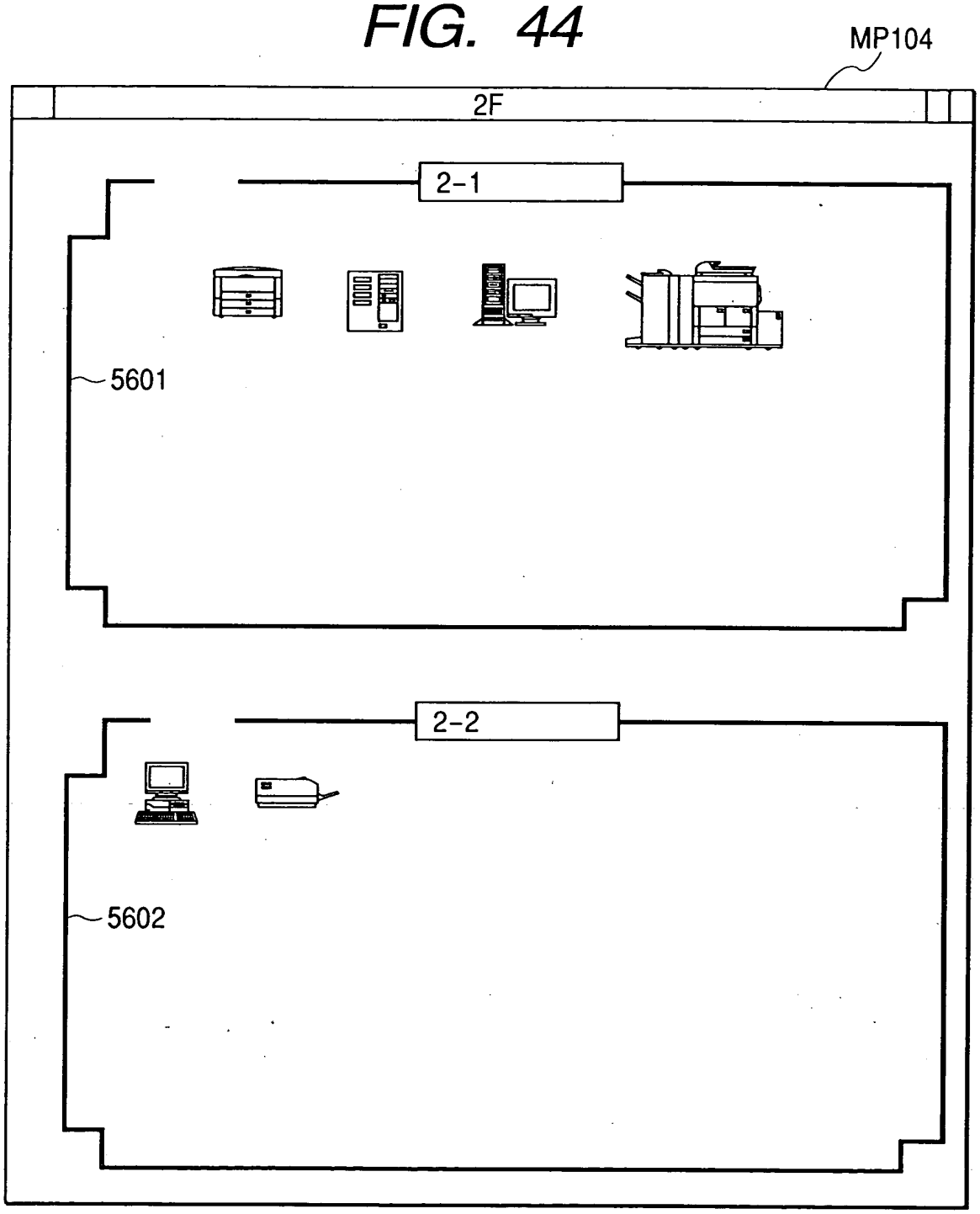
FIG. 43



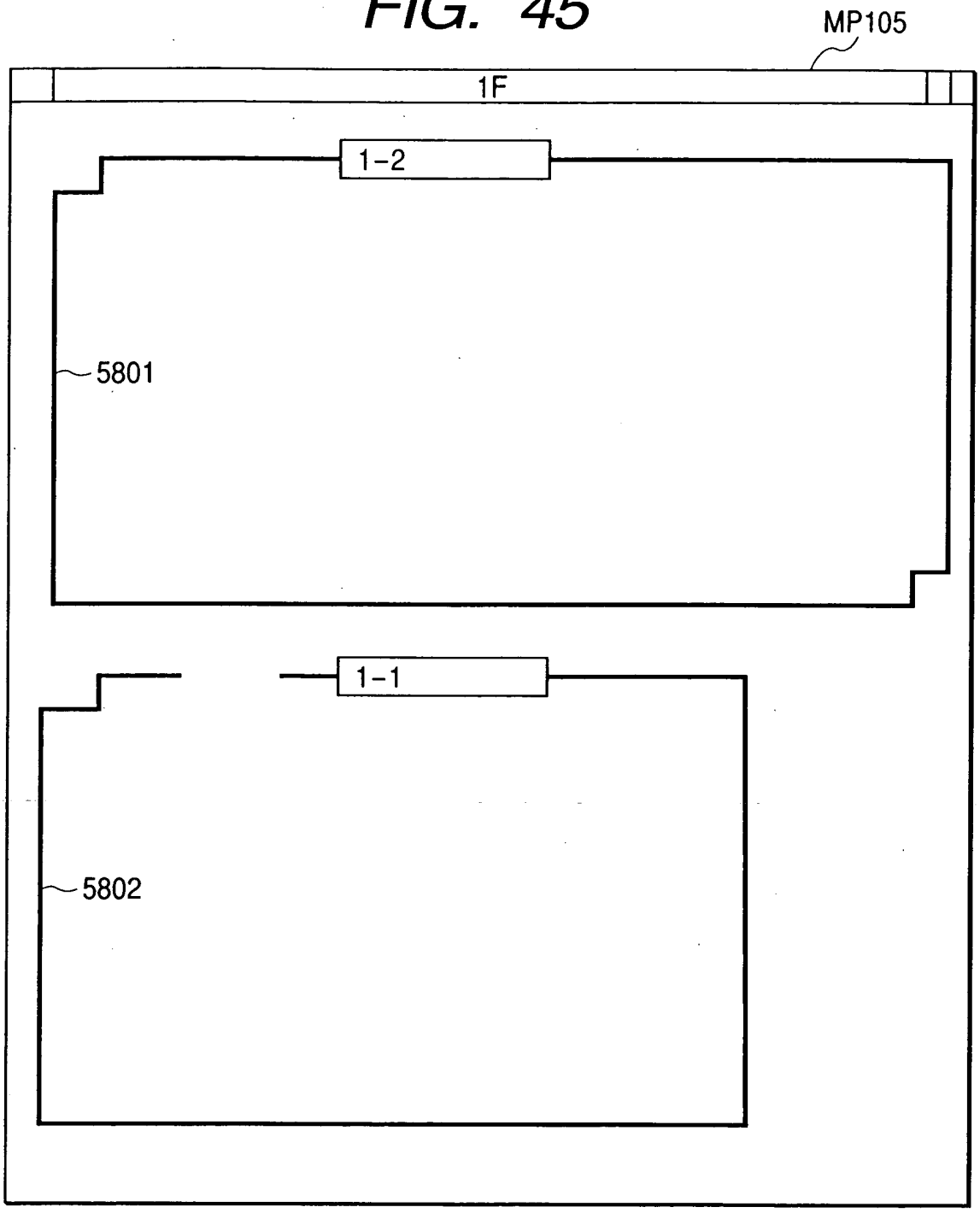
0626565.0700

FIG. 44



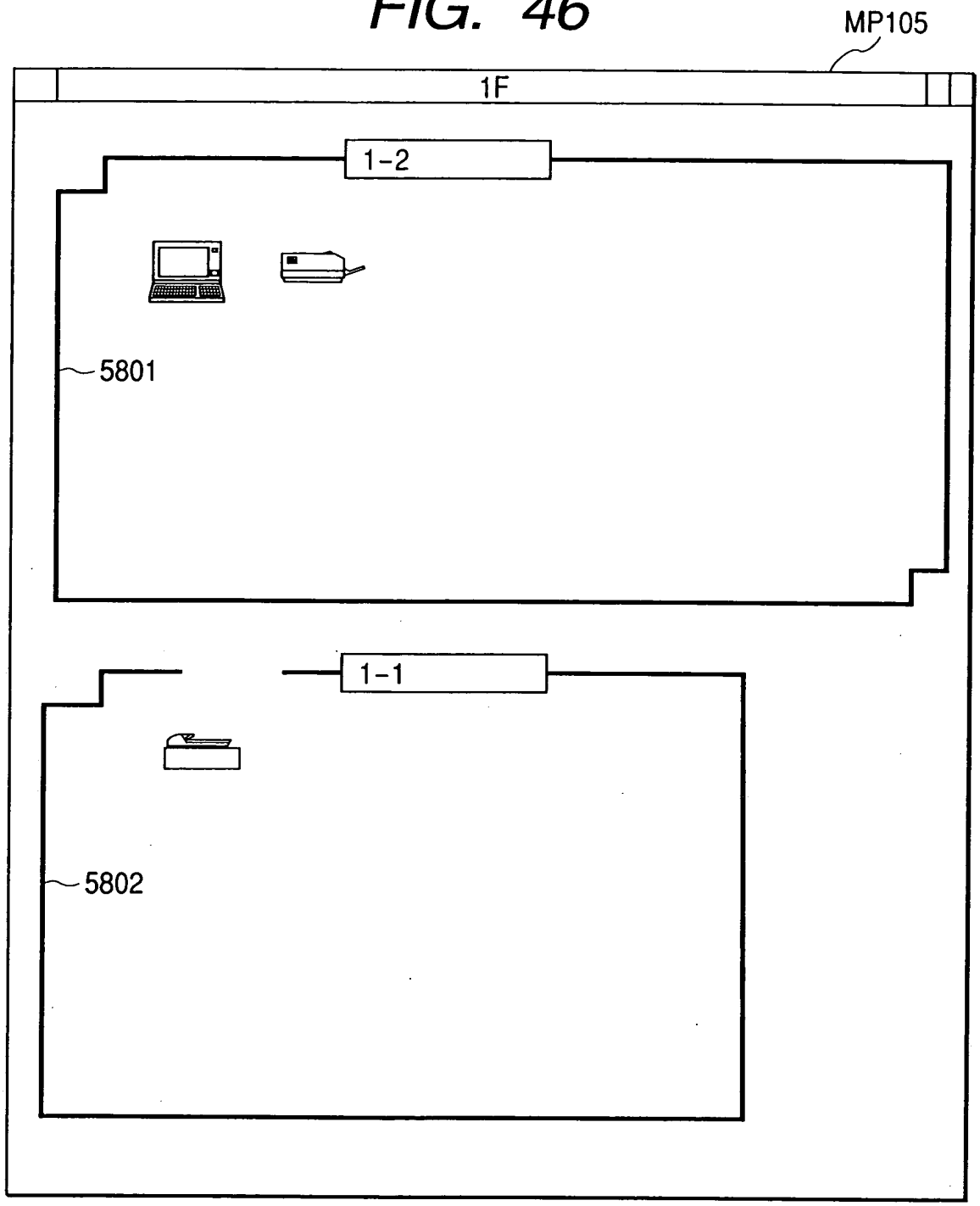
0961565-070700

FIG. 45



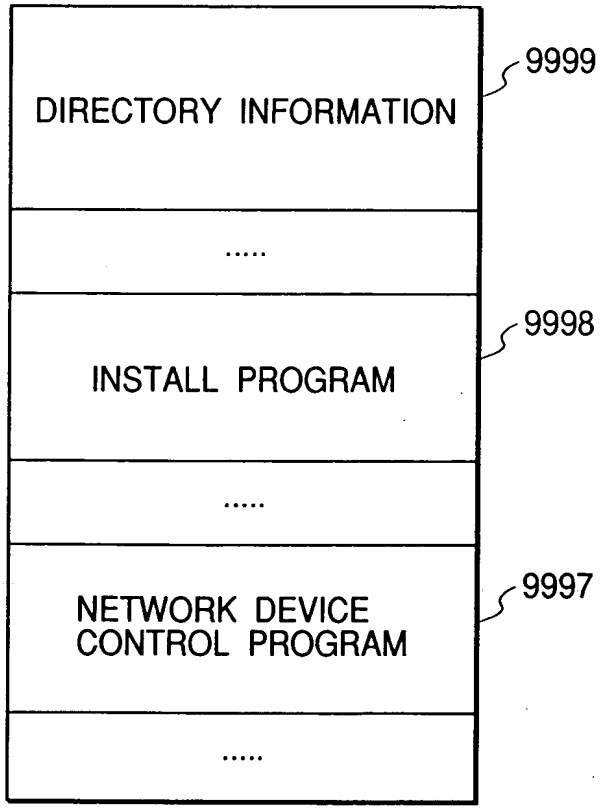
0954555-070700

FIG. 46



09425505-070700

FIG. 47



09625565 "070700

FIG. 48

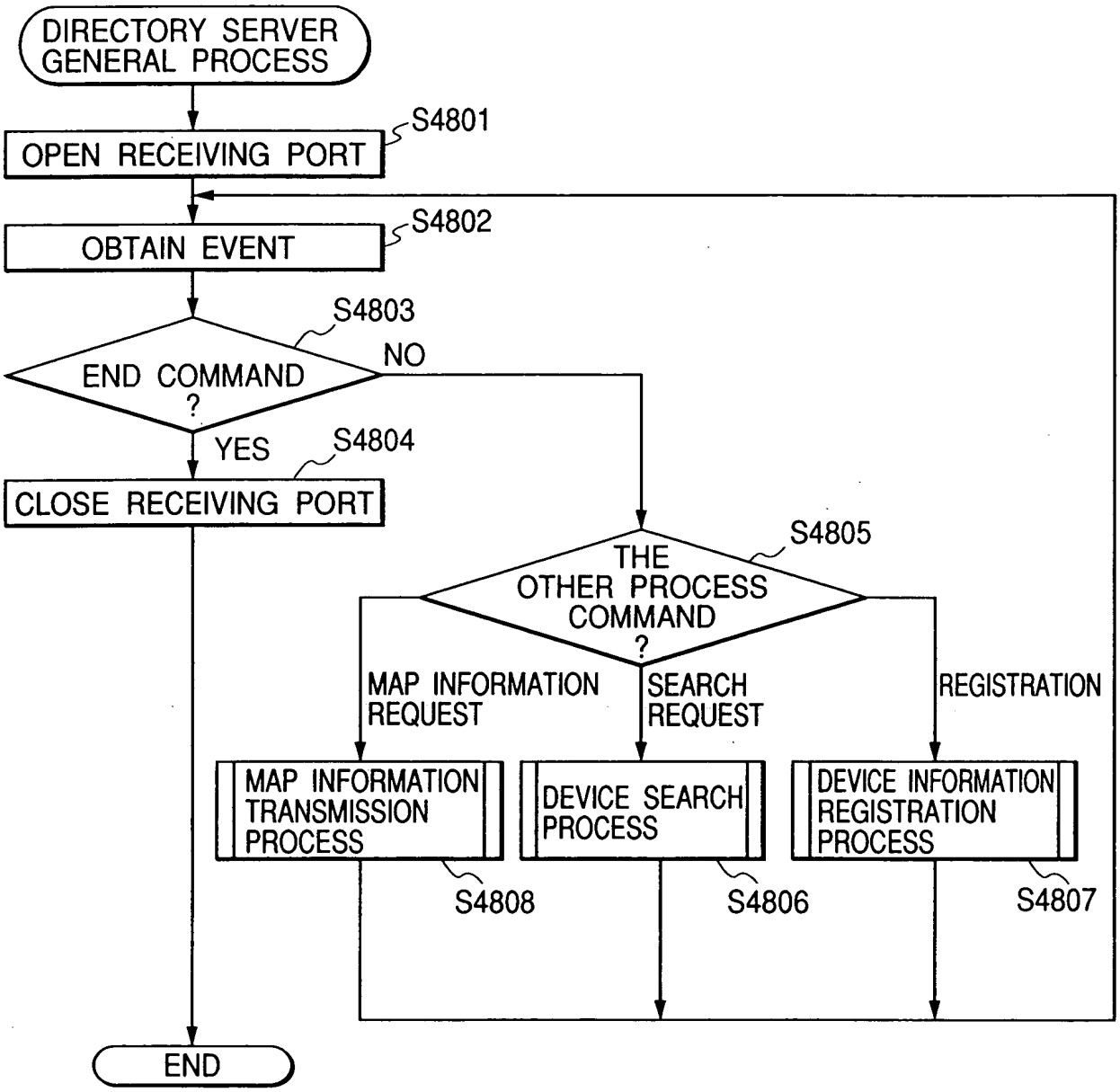
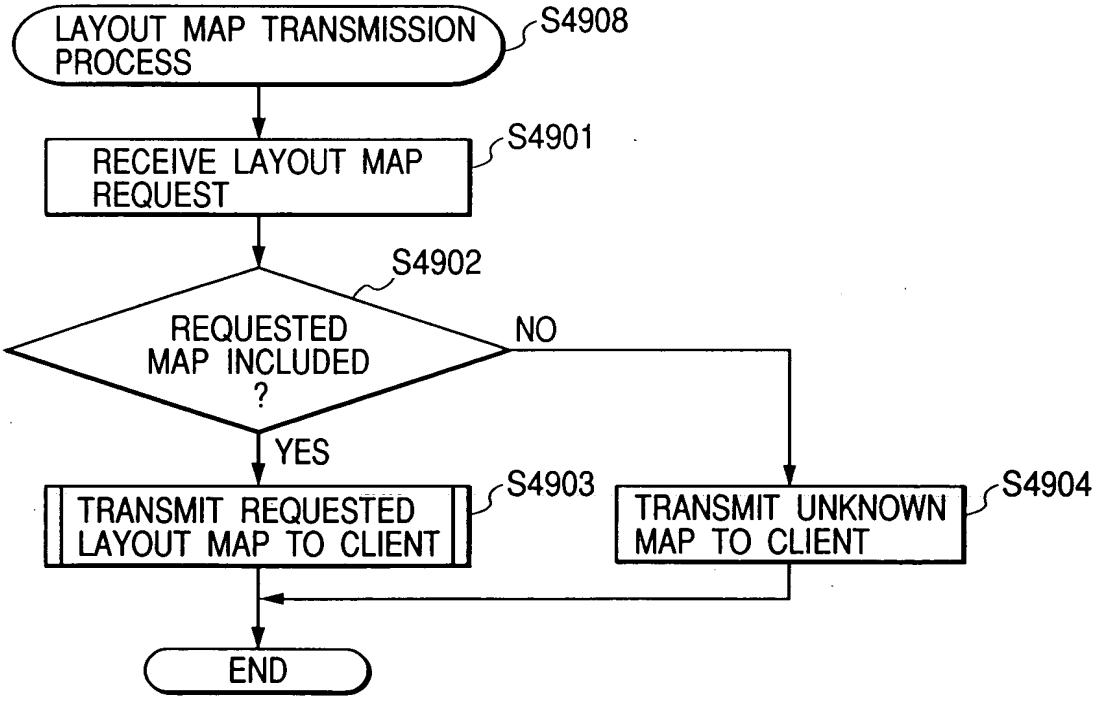

DIRECTORY SERVER GENERAL PROCESS
OPEN RECEIVING PORT
S4801
OBTAIN EVENT
S4802
END COMMAND ?
S4803
NO
YES
CLOSE RECEIVING PORT
S4804
THE OTHER PROCESS COMMAND ?
S4805
MAP INFORMATION REQUEST
SEARCH REQUEST
REGISTRATION
MAP INFORMATION TRANSMISSION PROCESS
DEVICE SEARCH PROCESS
DEVICE INFORMATION REGISTRATION PROCESS
S4808
S4806
S4807
END

FIG. 49



0020020-000525

FIG. 50

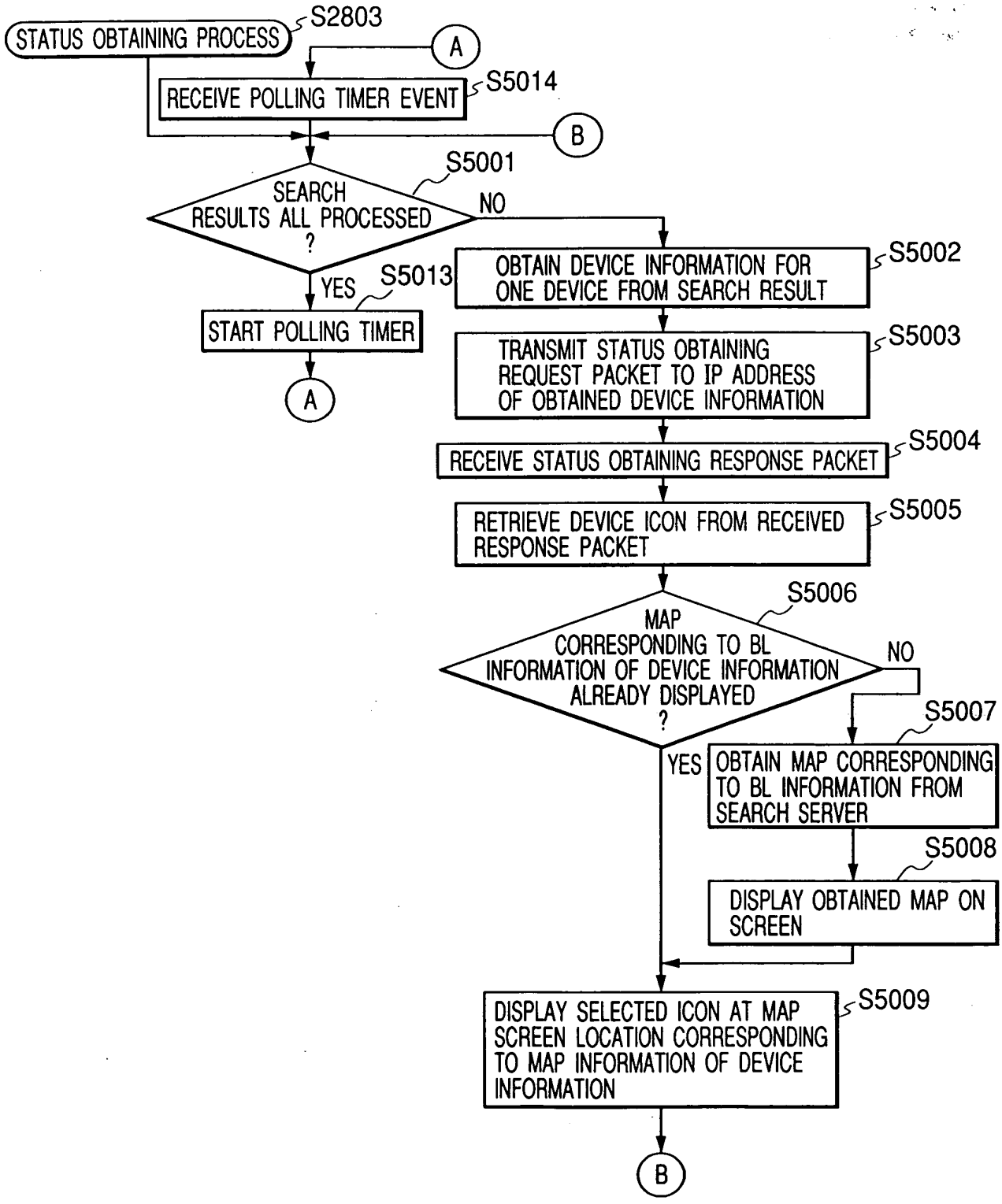


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FIG. 51

EVENT NOTICE DESTINATION REGISTRATION
NOTICE CONDITION TAG
NOTICE CONDITION = (PAPER EMPTY | PAPER JAM)
EVENT NOTICE DESTINATION TAG
EVENT NOTICE DESTINATION =TCP IP : 192.1.2.16:1025

FIG. 52

NOTICE CONDITION	NOTICE PROTOCOL	NOTICE DESTINATION NETWORK ADDRESS
PAPER EMPTY | PAPER JAM	TCP/IP	192.1.2.16:1025
PAPER EMPTY	TCP/IP	192.1.2.18:2040

FIG. 53

RESPONSE FOR EVENT NOTICE DESTINATION REGISTRATION
DEVICE BIT MAP TAG

FIG. 54

EVENT NOTICE	
OCCURRED EVENT ICON TAG	
NO PAPER	
LOCATION TAG	
NM	LBP1110
MAP	10X+10Y
DV	PRINTER
BL	2-1
FL	2F
BU	AA BUILDING
OP	EXTEND
BR	TOKYO BRANCH
O	ABC TRADING CO LTD.
C	JP

0951256-020200

FIG. 55

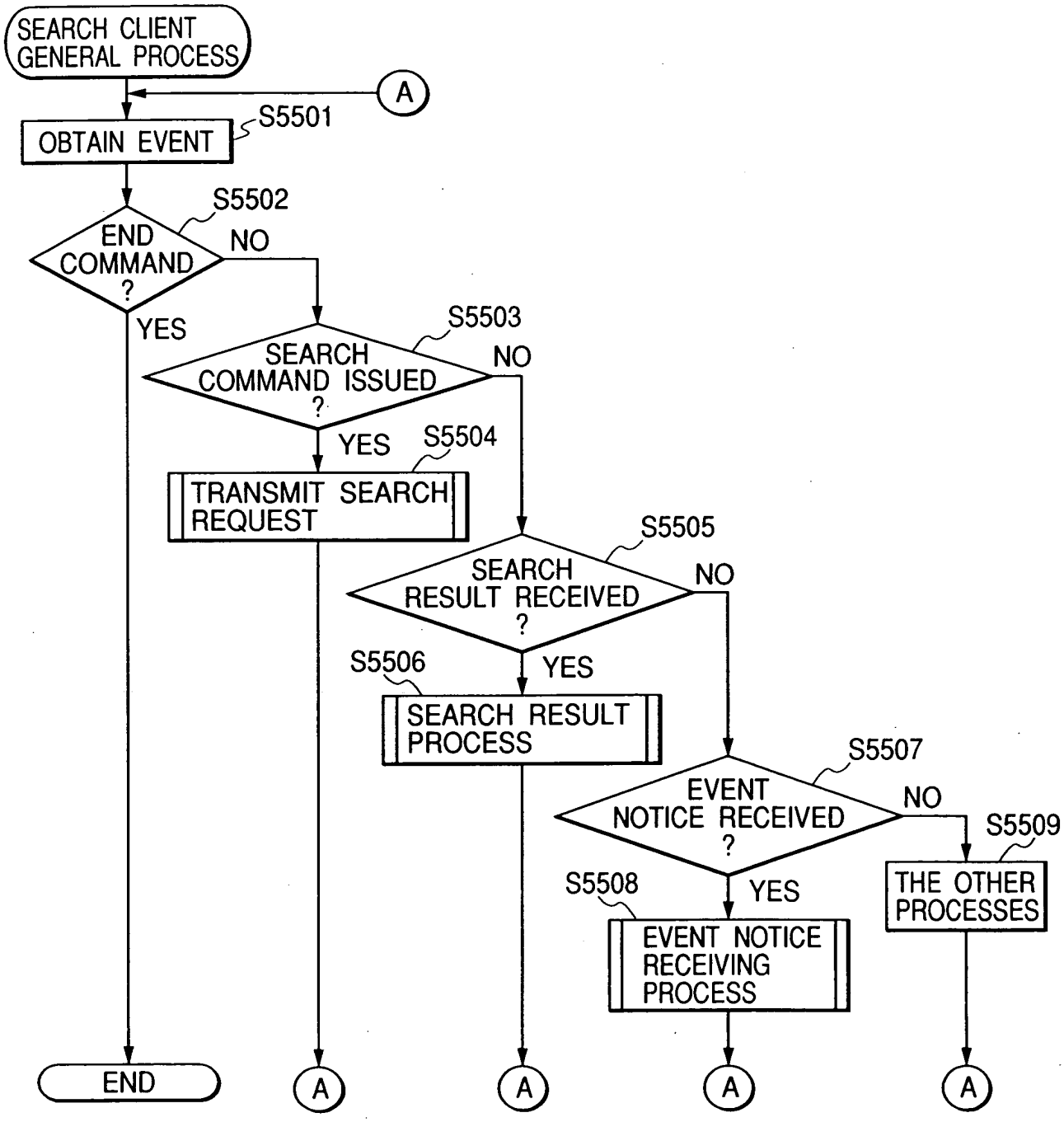

SEARCH CLIENT GENERAL PROCESS
A
OBTAIN EVENT
S5501
S5502
END COMMAND ?
NO
YES
S5503
SEARCH COMMAND ISSUED ?
NO
YES
S5504
TRANSMIT SEARCH REQUEST
S5505
SEARCH RESULT RECEIVED ?
NO
S5506
YES
SEARCH RESULT PROCESS
S5507
EVENT NOTICE RECEIVED ?
NO
S5509
S5508
YES
THE OTHER PROCESSES
EVENT NOTICE RECEIVING PROCESS
END
A
A
A
A

FIG. 56

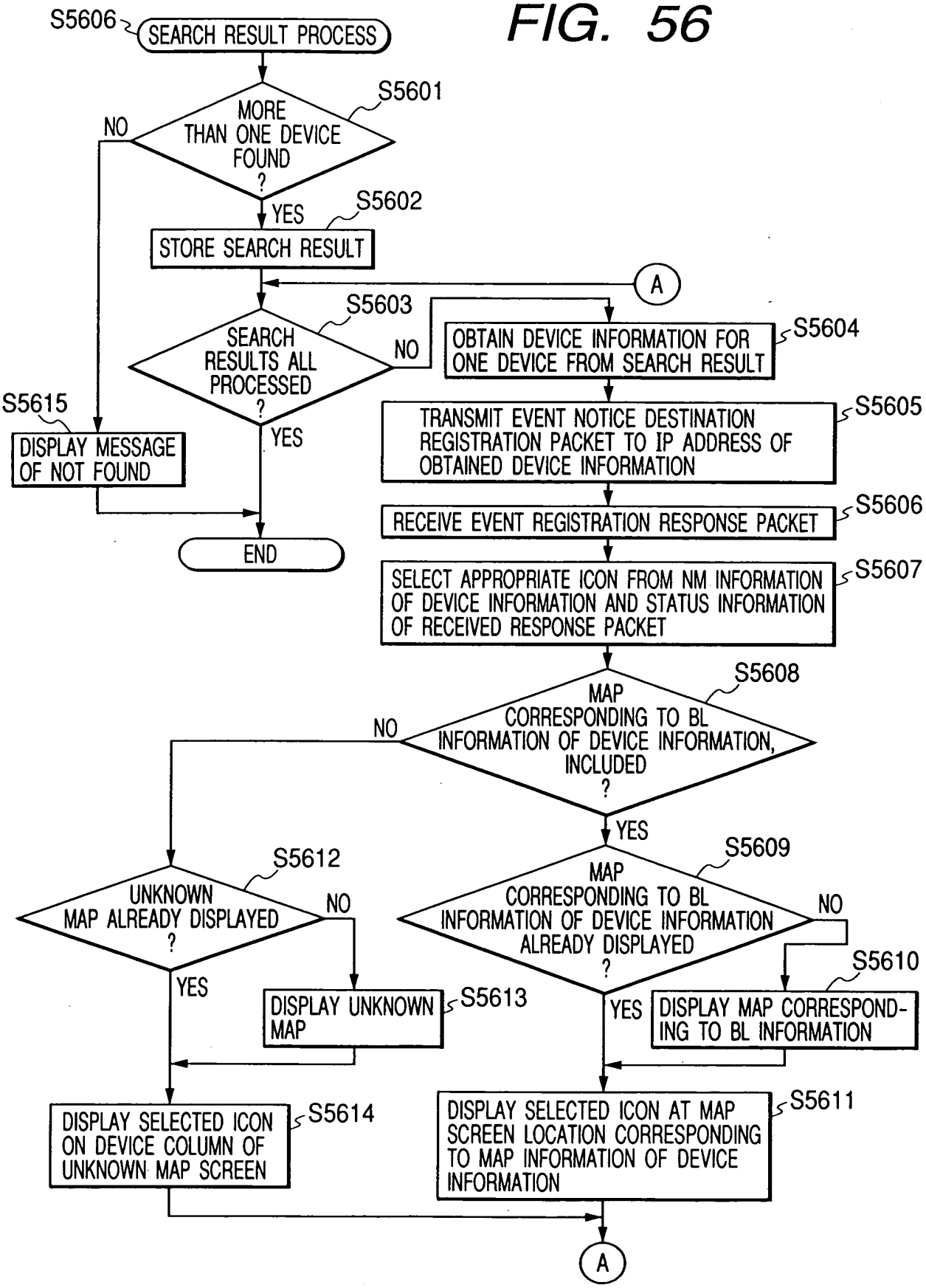

S5606
SEARCH RESULT PROCESS
S5601
MORE THAN ONE DEVICE FOUND ?
NO
YES
S5602
STORE SEARCH RESULT
A
S5603
SEARCH RESULTS ALL PROCESSED ?
NO
YES
S5604
OBTAIN DEVICE INFORMATION FOR ONE DEVICE FROM SEARCH RESULT
S5605
TRANSMIT EVENT NOTICE DESTINATION REGISTRATION PACKET TO IP ADDRESS OF OBTAINED DEVICE INFORMATION
S5606
RECEIVE EVENT REGISTRATION RESPONSE PACKET
S5607
SELECT APPROPRIATE ICON FROM NM INFORMATION OF DEVICE INFORMATION AND STATUS INFORMATION OF RECEIVED RESPONSE PACKET
S5608
MAP CORRESPONDING TO BL INFORMATION OF DEVICE INFORMATION, INCLUDED ?
NO
YES
S5609
MAP CORRESPONDING TO BL INFORMATION OF DEVICE INFORMATION ALREADY DISPLAYED ?
NO
YES
S5610
DISPLAY MAP CORRESPONDING TO BL INFORMATION
S5611
DISPLAY SELECTED ICON AT MAP SCREEN LOCATION CORRESPONDING TO MAP INFORMATION OF DEVICE INFORMATION
S5612
UNKNOWN MAP ALREADY DISPLAYED ?
NO
YES
S5613
DISPLAY UNKNOWN MAP
S5614
DISPLAY SELECTED ICON ON DEVICE COLUMN OF UNKNOWN MAP SCREEN
A
S5615
DISPLAY MESSAGE OF NOT FOUND
END

FIG. 57

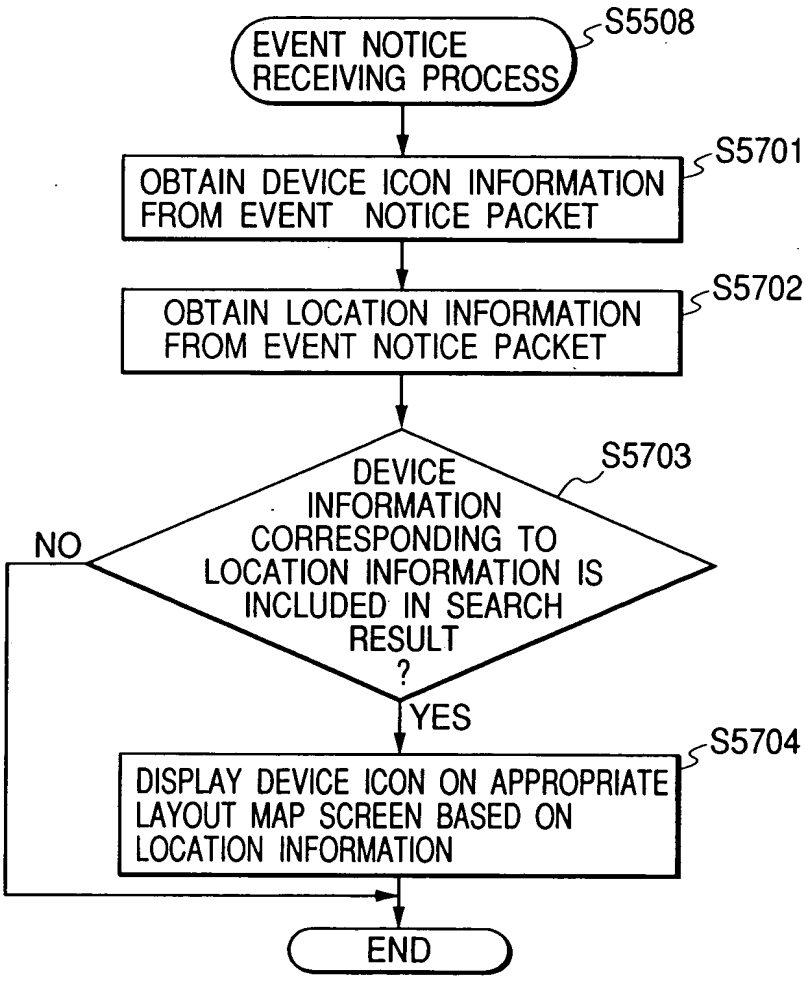

EVENT NOTICE RECEIVING PROCESS
S5508
OBTAIN DEVICE ICON INFORMATION FROM EVENT NOTICE PACKET
S5701
OBTAIN LOCATION INFORMATION FROM EVENT NOTICE PACKET
S5702
DEVICE INFORMATION CORRESPONDING TO LOCATION INFORMATION IS INCLUDED IN SEARCH RESULT ?
S5703
NO
YES
DISPLAY DEVICE ICON ON APPROPRIATE LAYOUT MAP SCREEN BASED ON LOCATION INFORMATION
S5704
END

FIG. 58

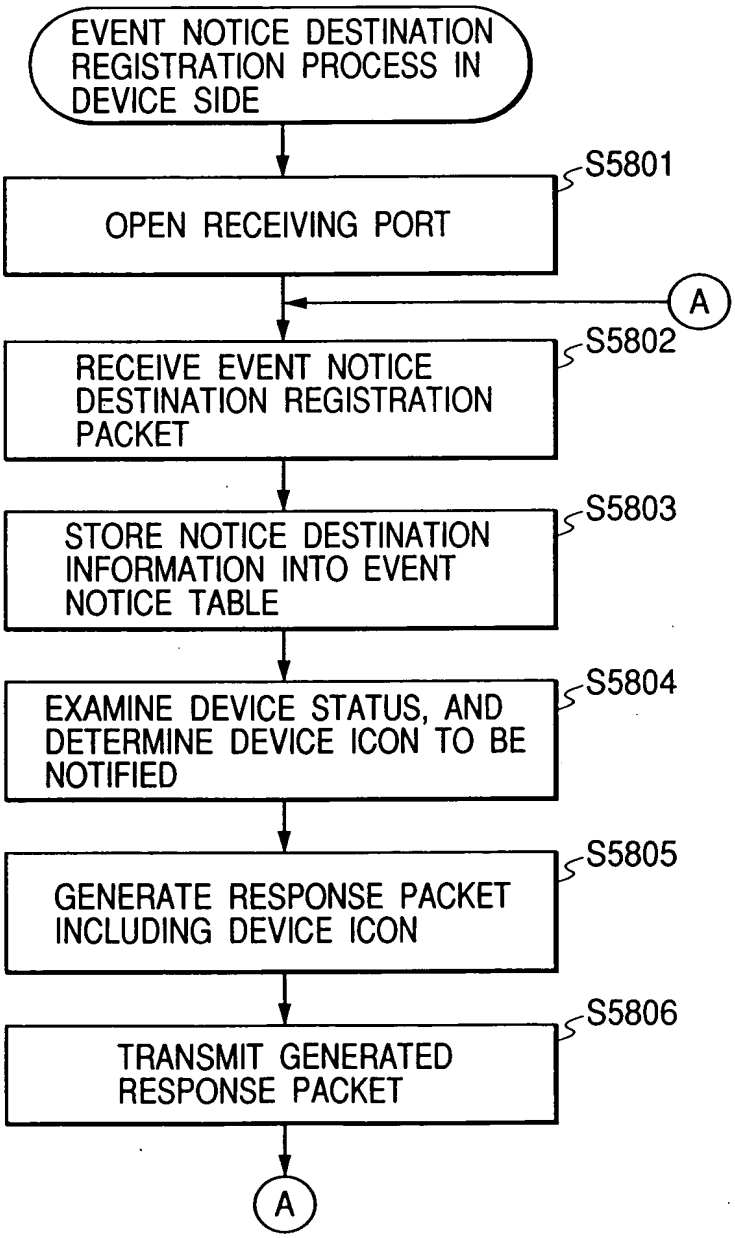
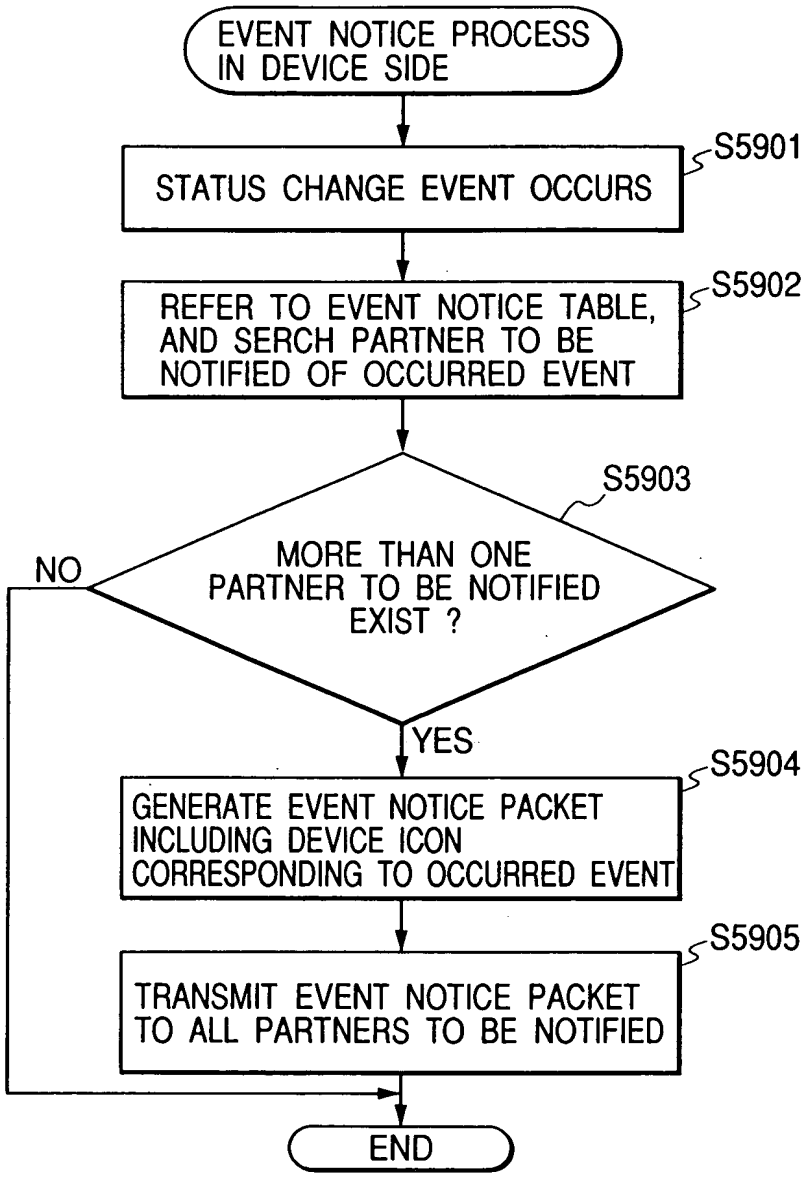

EVENT NOTICE DESTINATION REGISTRATION PROCESS IN DEVICE SIDE
S5801
OPEN RECEIVING PORT
A
S5802
RECEIVE EVENT NOTICE DESTINATION REGISTRATION PACKET
S5803
STORE NOTICE DESTINATION INFORMATION INTO EVENT NOTICE TABLE
S5804
EXAMINE DEVICE STATUS, AND DETERMINE DEVICE ICON TO BE NOTIFIED
S5805
GENERATE RESPONSE PACKET INCLUDING DEVICE ICON
S5806
TRANSMIT GENERATED RESPONSE PACKET
A

FIG. 59


EVENT NOTICE PROCESS IN DEVICE SIDE
STATUS CHANGE EVENT OCCURS
S5901
REFER TO EVENT NOTICE TABLE, AND SERCH PARTNER TO BE NOTIFIED OF OCCURRED EVENT
S5902
MORE THAN ONE PARTNER TO BE NOTIFIED EXIST ?
S5903
NO
YES
GENERATE EVENT NOTICE PACKET INCLUDING DEVICE ICON CORRESPONDING TO OCCURRED EVENT
S5904
TRANSMIT EVENT NOTICE PACKET TO ALL PARTNERS TO BE NOTIFIED
S5905
END